THE LIFE OF THE BAT

BY

CHARLES DERENNES

LOS ANGELES MUSEUM
EXPOSITION PARK

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: : *The Sentimental Bestiary* : :

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BY CHARLES DERENNES

Translated from the French by
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FIRST ENGLISH EDITION

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A

CHRISTIANE DERENNES

tendre et sage clarté de ma mortelle vie,
ces images des nuits commencautes

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BOOK I
THE IRONIES OF OLD PILE

EXPOSITION PARK

THE LIFE OF THE BAT

I

IN a charming and prettily named place, called Jolibeau, stood the garden of my grandmother's sister, just between the garden of the chaplain of the hospital and that of the old gentleman who played the flute in front of the hencoop to his chickens, with the well-defined plan of teaching them to shake their silly heads rythmically, or perhaps even of making them dance. I do not know if he had succeeded when he died, for he died only yesterday.

Jolibeau and its gardens made up a rustic suburb above my native town; it was several meters higher, but as the opposite hills were far away and the plain of Lot between lay absolutely flat, the countryside in front of my aunt's house was chiefly surrounded by sky.

A child always prefers those objects and those souls that offer themselves to him most liberally and generously. So it was that at Jolibeau, my cousins, my playfellows and I contemplated the sky, rather than the lawns, the flower gardens, and the valleys, though these were full of swarming and exciting life.

By day, toward the hill of Pujol there were often lovely clouds, and we tried to make out monsters or to find faces in them. At other times the sky was empty and we consoled ourselves by remembering that it was just such pure, empty skies, without pictures, that were richest at night. Those splendid nights of August and September! And vacation time, too!—— Some place, I do not know where, we had unearthed a popular Astronomy, and soon the names of the stars were sweetly familiar; Vega in the Lyre was just at the zenith when the shadows began to fall. It was a great game to see who should find it first, this beautiful and beneficent blue star; I am afraid we cheated sometimes.

And then the days passed, the sky turned over, and Vega glided down as the days shortened; soon Capella appeared toward the north on the edge of the horizon, shining with an uncertain, yellowish light, the sinister presage of autumn and school days.

The constellations that I liked best, let it be understood, were those that the northern heavens have not known for the last ten or a hundred thousand years. The Southern Cross shone in all my dreams and reveries. Unable to count on going to see it soon in the place where its splendor paves the vault of night, I did not, on the other

hand, despair of some minute accident which might some night or other turn over the sky sufficiently for it to charm the eyes of the little boy who loved it.

Still, I kept these thoughts to myself. I was right in doing so for the longed-for accident has never yet occurred.

By dint of watching the ways of the stars, I noticed the existence of bats. It was a precocious renunciation, on my part, of the contemplation of the heavens above, of which we know as much as it is possible to know with our present means of investigation, and where there is nothing at the moment to be hoped for by one who, above all things, wants to know more of his fellows and of himself. The real aim of the astronomer to-day, as I think, should be first of all to invent means of bringing the objects of his investigations nearer; he should be duplicated and even preceded by, a mechanician, and not be content with the instruments he uses now, under the pretext that the telescope has uttered its last word. Indeed, I believe that even more powerful and more perfect telescopes would not facilitate our researches very much; we have exhausted their resources; but there must be something else or various other

tools to be found; many of our scientists to-day specialize too much, and though otherwise meritorious and suffering from a lack of proper aid, they sin because they are bound by a cramping routine or because they lack inventive imagination or are hampered by excessive timidity.

Where the human eye, even aided by colossal lenses, perceives only fog and clouds—and where apparently they will never see any thing more by these means—some other machine, supplementing our senses, may to-morrow win a new victory. Personally, I think there is no particular difficulty in imagining or even bringing to perfection an instrument for photographing at a distance, an instrument permitting us to reproduce, from any given point, objects at a varying distance from the operator—anywhere from zero to infinity—a theoretic infinity and practically one which would bring under our observation a good half, at least, of the millions of leagues which separate our earthly orbit from that of Neptune.

Perhaps I shall be able to explain at length, later on, how this idea of an instrument came to me. The principle is so simple that there is every chance that some one else will find it before I myself have first chance to contemplate, near at hand, these far-away corners of the sky. But it is certainly pardonable that I should want to be the first

to see them and I am not giving proof of excessive egoism.

And what, indeed, should I ask of these neighboring planets, were it not some explanation of the secret of our being? I expect very little more of the knowledge of the heavens above than of the heavens below, so full of the unforeseen and the marvelous.

One night there passed between my childish eyes and the early stars some noctilionids; and as I had already a presentiment of what was to be the principle thought and preoccupation of my manhood, the interest I felt in these little beasts, I found it wiser for months and years hardly to look above or below me, and so I forgot the stars.

The noctilionids flew so near my head that sometimes the beat of their quick and apparently incoherent flight raised the hair on my forehead like the breeze from a fan. A little higher up the more important bats circulated, with a fairly regular flight, the wings beating evenly. I do not want to bother about the scientific name of this race, whose representatives I called, for my own use, the flying rats. The adult noctilionid is generally of a fine, somber gray, velvety, the color of the great night-peacock moth, and it has the muzzle of a bulldog

and the ears of a pug. The flying rat is of a more faded and gloomy color, smaller ears, with a nose less broad and flat. But first of all, in the full rays of the sun, a couple of larger bats, called, I believe, roussettes, or red bats, let themselves down from the corner of the roof of M. l' Aumonier and kept up a flight of sixty meters or more, methodical, slow, sure, and almost daily, too.

These are the three varieties of flying mammals that from spring to autumn haunt the dusks of France.

Some years later I managed to catch a roussette, of fine build, in the cellar of an old castle of which only the tower and some uncertain ruins remained, over on the opposite hills, the other side of Lot and ten good kilometers, by a bat's flight, from Jolibeau. It was an impressive creature, with a spread of wing of twenty-five good centimeters, nervous, muscular, and it fought like a devil when I tried to catch hold of it in the cage in which I had put it, nursing the hope of making it more sociable by loading it with dainties and caresses. It was, in minature, one of those flying foxes, abounding in certain of the Oceanic islands, which I unfortunately have never seen except about fifteen years ago in one of the most beautiful films it has ever been granted me to see. Its hair was ochre and brown, muzzle small, ears straight like those of an

Alsation or Belgian sheep dog. And what teeth! The thumb of my left hand still bears their mark. The beast had fastened its jaws in it, without warning, one day when I was just persuaded that I was beginning to tame it. An instinctive gesture had led me to drop my hand from my upraised arm and there is every reason to believe that my lodger had foreseen it; escape was possible, and it flew out of the open window, in full sunlight, with marvelous precision and astonishing exactitude.

I have said that roussette and all its tribe hunt before the sun has reached the horizon. The adventure that I have just related proves, in any case, that they see plainly by full daylight. I am almost tempted to write that roussette has the gift of irony, for as it passed the window frame—I see the scene again to-day as if it were still before my eyes—it appeared in profile, and the position of its big membranous hand, whose end touched the muzzle, was like a rapid mocking gesture, with the thumb to the nose, at me.

However, it is only casually that roussette and the flying rat occur in this story. My heroine is the noctilionid, the quite little one that sometimes flew so near my hair; for I have said that between unbounded space and myself, I limited my ambitions (and I have perhaps no others) and that I prefer to deal with those things that are actually tangible.

I do not know who revealed the name to me of this quite little bat, the most backward and most abundant under the sky, the real proclaimer of the stars, and their companion in space for a few minutes; perhaps it was the gentle old man who never despaired, up to his death, of teaching his chickens to dance. But Noctilionid, as a name, seems long and pretentious. Moreover, the first one that I captured I called Noctu, for short, one of those childish abbreviations so familiar to youth and to the slang of the schools and colleges. Noctu, had also another merit—try spelling it Noc-Tuh or Noktu, and you will see!—that of sounding the timbre of the extreme East, and giving the animal a name which fitted its silhouette, its comical outline, sharp and precise like a toy or an art object from Indo-China or Japan.

It was not without difficulty that I caught Noctu, though it flew so near my hair.

II

OLD Pile—for that was his exact name and doubtless he had occasion to make his cross under it on various civil documents—old Pile lived below the level, as we called it, of the garden of my grandmother's sister. I have mentioned that the plain commenced on the other side of the road,

never varying its altitude by two or three meters until it reached the opposite hills, which swept like blue scarfs across the lower slope of the sky, far away, opposite Jolibeau. Old Pile was a kitchen gardener by trade, and his immense flat laboratory of greens, cabbages, radishes, asparagus, and melons stretched all along the rustic road up to the beginning of the town street, where the white and red houses were gray and rose-colored at dusk, the hour of the noctilionids. This was the hour, too, when Pile went along the road and sat on the slope to take his evening meal and talk to his neighbors and the passers-by.

"When it is the fine part of the year," he would explain, "I would rather go to bed empty than not take my supper here in the open, before the whole world."

His supper, at least in vacation time, was invariably as follows: a raw onion with coarse salt, or green peppers, a piece of bread rubbed in garlic and oil, which he ate either with white grapes or slices of sausage. After that he would announce:

"I am going to get my desert."

He would come back from the level place to the slope, bearing an ostentatious porringer of soup, which he swallowed gravely in little spoonsful, discoursing between each mouthful. His hogshead, as he called it, a pump, was right beside him. The

soup finished at length, he would go back to his house for an instant, take a mouthful of wine, rinse out his mouth, and spit it out.

"It's just for the taste," he would say.

He never got tipsy except on meat days—Sundays or feast days—and after these libations it is impossible to imagine a more jovial companion; the whole neighborhood would assemble to hear him sing or joke in his courteous manner, even my aunt and the chaplain and the old dancing-master. You can easily imagine that I would not have missed one of these meetings for anything in the world and that I always took a seat in the front row.

Dear old Pile, perhaps he is alive still! He was tall, thin, hawk-like, a sort of Don Quixote figure with the face of an Arab, with gray hair and terrible eyes, black as jet. I am sure that at bottom there never was a gayer, more amusing man in the world, and yet, except on Sunday evenings and feast days, I never saw him smile. Sometimes he threw back his head and pinched his lips together; the ends of his nose and chin were getting more and more pointed and he cleared his throat drolly; that was his way of smiling.

He was sober of speech, but the words he said

hid an immense irony, but without any venom in them. For hours he would sit there before his door or on the slope, his nose in the air, smoking his pipe, never moving, perfectly silent; but do not be deceived, he was nothing of a dreamer; he was telling himself over again the jolly tricks he had once played, and planning new ones, thinking over the comedy of life, imagining fine phrases and sharp replies; he adored teasing children and dogs—and explain it if you can—neither dogs nor children, who are infinitely more sensitive to ridicule and chaffing than reasonable men, ever resented it. Not even I, who at ten years old took infinite pleasure in jesting with and mocking people, and who might have been expected to feel irritated by his talent for mystification which was so much greater than mine; and the knife grinder's dog, a distrustful, uncommunicative cur, would greet him with barks of delight when he made faces or shook his finger at him, a thing that dogs usually abhor.

"En la fin, porqué il te quierre tant, esto perra?" ("Anyhow, why does the dog like you so?") the old knife grinder would ask Pile. Antonio was a Spaniard who had lived a long time in Lot and Garonne, but who still murdered the French language in a frightful way, and also Langue d' Oc and Castilian into the bargain.

One of the most usual and ironical procedures of

Pile was to answer a foolish question asked him by another that bore no relation whatever to the subject. In Plato, Socrates often uses the same method.

"Antonio," said Pile, gravely, "why do you continue to speak in our country like a Spanish cow, while your dog, who comes from Pampaluna, as you do, barks almost as well as his kind in the city?"

And what merriment danced in the eyes of old Pile, while Antonio, much offended, gesticulating, felt that he must seriously explain, in his broken dialect, that that was no merit of the dog's!

In his dealings with the village boys, Pile's fund of malice was inexhaustible. He would promise them a whistle, set to work on it, but never finish it, pretend to try it, and explain that he had to wait for rain, because whistles were like frogs and that he would risk spoiling it and making it mute forever if he played on it in dry weather, especially for the first time. And he would scan the sky anxiously: "We can't do it to-day, but to-morrow perhaps—"

He made lovely little boats with no other tool than a penknife, but when we asked him why he put lead in the keel, he would answer:

"So that it will swim better—and the more of it there is the better it goes. Ah! if only we could put in a weight of five pounds!"

Or he would take out the stone of an apricot and replace it with a grasshopper and give the apricot to some little boy, who, as soon as he set his teeth to it, would hear it give a strident cry.

But at last the rain would come and the whistles would sound and a benevolent hand would fish up from the ponds the little boats which the too credulous little shipowners had sent to the bottom. But they always mistrusted the gift of an apricot, which was nevertheless a pure gain, since thus the possessor got a fine fruit and a living toy at the same time.

The little boys and Antonio's dog were of the same make-up and the same disposition. For, though I have not confessed it, the cur had the same reason for accepting the grimaces with pleasure, and these reasons consisted of furtive offerings of bits of bread or a lump of sugar, given so wholeheartedly. And thus with the rest of us who were not so very much more above the soil than the knife grinder's dog; with Pile there was always a good deal to be gained at the risk only of a few slight and passing wounds to pride. The dog and my comrades and I were perhaps more sensible than many people reckoned sensible, loving Pile

with a sure and instinctive impulse, quite silently, grumbling and jealous at times, but definitely and eternally, because laughter and goodness, conjugally united, represent in this age of our race the safest gods and most favorable idols that we can cherish for the general welfare.

III

"YOU are quite right to keep looking up into the sky when you have nothing better to do," said Pile to me, one day after he had been watching me for some time. "In that position the larks can drop, already roasted, right into your mouth; you have to be a little patient, that is all."

I was twelve years old, very proud and widely read, though my reading was entirely disorganized. My greatest wish was that Pile were of my age, my reading, and my pride, for I admired him from the bottom of my heart. Or, to put matters on another footing, I would like to have been treated like a man by him. Perhaps the old man understood this, for that would have explained a certain air of sadness which he seemed to feel, at times in our conversations, much less for himself than for me.

Reckoning up my merits, I considered myself one upon whom they could not put anything over, one

who knew whatever was necessary for a jester and ironist to know; and I should have liked my master, without pushing flattery so far as to declare me aloud, his equal, at least, not to have treated me as an ordinary man. I got to the point of dreaming of revenge in which I would show him of what metal I was made. I dissimulated as well as I could these tricks and high intentions, and I often played the fool subtly. Was he taken in? I doubt it. I am even sure now, twenty or thirty years afterward, that Pile saw (or heard) me coming from the distance with my big sabots, and that he only exercised his talents upon me as a matter of principle, as an incurable and disillusioned amateur.

"Well," continued Pile, "are you still a huntsman of hanging rats?"

"As you see, Pile. Bats are very good in stews. But I have not found out yet how to catch them."

Pile reflected an instant:

"You have only to spread horse-hair nets in the trees where you see them, just as one does for the larks in the furrows."

I shrugged my shoulders, having given up, without realizing it, my intention of playing the fool.

"Oh, well, perhaps you are right to distrust the method," said Pile, imperturbably. "I am only an old man, and memory, the oil of the brain, is often lacking in the lamp. It is true! Hunting with nets

has been forbidden and you might get into a lot of trouble. But I know of no decree, from the mayor or any other, that forbids fishing for bats with a line, a swinging line, you understand."

"That's a famous idea," I cried.

"Not that I can answer for anything."

"May I, at any rate, go down into your yard and cut a switch?"

"It is not worth while. I have some canes, dried to a turn and all ready, leaning against the wall of the shed. The corner grocer at Bricou will sell you a good line, well wound up, fine and solid to fish with—"

"Thanks. And then?"

Pile brushed off the ash from his pipe, stuck it in his belt, and said in French, with that little touch of sadness that I often noticed in his intercourse with me:

"Afterward? Well, I will teach you and show you, unless you are now of an age to teach me, yourself!"

I had the advantage of him from that moment, it appeared to me. But at the same time I felt as if something had died between the old man and me, something, perhaps, which was, after all, my own childhood. Up to that time we had never conversed except in Gascon. There was something superb about the moment. Old Pile was talking to

me in the official language, as he did to gentlemen, the chaplain, or the dancing master of the chickens.

It seems to me to-day that I would be ten years younger if he had not played that trick on me. Oh, Father Pile! You evil enchanter, my guide in the art of irony which suited you so well, and fits so ill those who try to know everything, I hate you even now while I still continue to love you so much! I believed then that I was getting my revenge, but what a victory my memory accords you, in this stage of my way, when I evoke your voice and your face.

So, provided with a good pole, I knotted a flexible old curtain at its end, then, armed with this sort of oriflamme, I might be seen for a whole week chasing or watching the noctilionids which promised to pass at about the height of the rag and to have their flight hindered by it. I also tried a butterfly net with a big opening and a very long handle, but I soon gave that up; the instrument was too tiring to handle, and then, moreover, it seemed more honorable to capture the beast with the fishing pole which had been offered to me by way of derision.

Seated on the slope and munching his onion or his bread and oil, Pile admired my ardor and my ef-

forts in the most disobliging manner: "There was one; I thought he would be caught!—Look out for the next! brave little chap! keep it up!—Better and better!—Now you are getting on!" Then at last, hit by chance by the rag, a little soft, gray thing dropped into the dust at my feet, with a rustle like silk and little shrill cries, and the pitiless man rose up to offer me his congratulations.

"Bravo! Good work! One must admit it. And what agility! Great Lord! And what accuracy of vision! *Moun Jésu!*"

These were praises that would have been amply merited if, as I have said, the capture had not been entirely by chance and while I was not in the least looking out for it. You, champion pigeon shooters, try your skill on bats and you will agree with me. I do not know who it is that has written of the noctilionid that "its flight is less a flight than a sort of uncertain flutter"; I fear, indeed, to tell the truth, that this inglorious phrase rises to my memory from the pages, read and reread, of *Buffon for Children,* which they gave me long, long ago. I fear for the venerated memory of the great precurser, for flutter is not the right word; its flight is like a stationery flight, or like a butterfly hovering over a flower, or a sparrow on the edge of its nest, or even of the bat itself regaining the edge of the roof where, its chase ended and its paunch full,

it clings by the claws of its feet, its thumbs, or spurs, and sleeps often with its head hanging down, a position which for us poor men would be most unpropitious for repose or good digestion.

Still, in the course of its daily chase the bat flies quite simply; there is no other word for it and it would be sheer vanity to try to invent a special term which should describe any more accurately the way Noctu and his numerous cousins move through the atmosphere. The Chiroptera are the only mammals to whom locomotion in the air is permitted by nature, but there is more difference between the flight of the vulture and that of the sparrow, physiologically and mechanically, than between that of the sparrow and the noctilionid.

How shall I dare to describe this little fellow without running the risk of making a piteous little poem in prose, or of concocting phrases which will seem to be borrowed from the dialogues of snobs discoursing on the Russian ballet? In the flight, as in the face of the little beast, there is an intangible something that partakes of the nature of a wager or a gamble, a phantasmagoria of sinuosities, spreading through all the known dimensions of the human mind, a capricious joyousness, a disquieting sorcery, a distracted juggling with itself and everybody else; but this is only literature and

much less beautiful than the naked and stark reality!

The flight of Noctu's numerous cousins is, as I have said, wise and methodical—apart from the position of the body—for the vampire bat and the flying rat swim through the air almost vertically, as a dog does in water; its flight hardly differs from that of a placid and fat domestic pigeon getting back without haste to the pigeon house; a flight with beating wings, but not beating more than three times a second.

The motor which propels Noctu's progress turns more quickly; it is driven almost at double the rate. Having just borrowed a metaphore from the slang of the autoist, I do not hesitate to follow it up by a comparison of the same nature, which will at least have the merit of making me easily and rapidly understood: the vampire bat evokes the picture of a limousine, restful, stable, with double tires, with a solid and relatively slow engine; but Noctu is the rapid, fantastic little sport car, whose engine snores like a top, but in its swiftness it comes apart a little and risks loosening somewhat as it veers—frail as it is—so that wear and use are quickly felt.

In fact, Noctu cannot fly more than ten minutes without being exhausted and feeling the need of stopping an instant, however hurried it may be

and little as its hunger is satisfied. It is enough to have marked one of its refuges—the edge of a roof, the fork of a tree, or a hole in the wall—whence these beasts emerge, in early spring, generally in couples, to know that monsieur and madame will return in ten minutes to their lodging. To feed the nestlings? No, you ignorant ones who liken bats to birds. The little ones are not born yet, and they suckle, anyhow.

But how, you may ask me, do you know that it is the same two bats who come back every ten minutes to the shelter you have marked? I affirm it because there are always two, because the husband of Noctu is resolutely monogamous, as I shall show farther on; because a couple never tolerate, under ordinary circumstances, any intruder in the elected nest during the season of love; because—

But for the present it is enough to specialize as to the time that Noctu is able to fly; and ten minutes is its maximum. Moreover, it is simple enough; the next time one of the race gets into the dining room of your country house, close all the windows and doors, and you will have to wait no longer until it goes and hangs itself on the frame of a picture, or a fold of the curtain, however frightened it may be at its captivity; you can even go and pick it up like a fruit from a low branch; it will hardly try to escape, it is so tired.

That is an easy enough way to catch a bat. Need I say that I did not yet suspect it, that evening when, after so much trouble, I succeeded in picking up the little silky, crying beast out of the dust of the road to Jolibeau.

BOOK II

THE MOST PITEOUS LITTLE BEAST UNDER THE SKIES

I

BUT during the ten miserable minutes of flight conceded by his flying apparatus, lungs and wings, engine and motor, Noctu will hardly have covered more than eight kilometers.

This is the rather simple way I used, in my youth, to measure the speed at which an animal could fly: armed with a sport chronometer, obligingly lent by my professor of gymnastics and fencing, I placed myself one evening in a large hothouse, empty on fine days, closed all the shutters and lighted up the white walls by means of an acetyline lamp; after this I dipped the end of the wings of one of my captives in thick ink and let it loose in the hothouse. Knocking against the walls, which blinded it by their whiteness, as is usual, Noctu left its mark; I had then only to count the seconds which elapsed between the successive appearance of stains on the walls and measure the distance through the air which separated the stains. Never—and my experiments were many—did I note a speed greater than fifty kilometers an hour; this is very little when one considers that a wild duck or a woodcock can cover eighty kilometers in the same time, and the swallow easily more than a hundred.

It seems little, too, from our point of view, for the movement in the air of the Noctilionid seems

to us extraordinarily rapid. But it is only an optical illusion and the result of an association of images and words consecrated by use.

An optical illusion because the Noctilionid whirls very low and very near us; an association of images and words because it is understood that rapidity is always rather dizzying. And the flight of Noctu, if it is not very rapid, is dizzying. If, dipped in ink, the pointed extremity of its wings left a track of its passage on the great dark blue canvass of the twilight sky we would have before our eyes the plan of a most fantastic and amazing labyrinth. Leaps, wide, long, high, falls and turns in the air, somersaults and skiddings, nothing is lacking to give us the impression of a wager, the phantasmagoria that I have mentioned above; it makes us think too of a wild, haggard, frightened flight before some invisible enemy. For, as so often happens in nature, the creature seems pursued, at the very moment when it is assuring itself of life, by the death of a quantity of infinitely smaller lives. And we must recognize, and shall see better farther on, that the way in which Noctu acquires its nourishment is infinitely hazardous and difficult; and for this reason it has a right to our respect. Its livelihood is painfully earned and dangerous because Noctu, lamentably infirm on the ground, has to search for it in the air, where Noctu

is not brilliant either in resistance or in speed. In fact, its flying apparatus is the most imperfect and frustrate that we are shown in the entire animal kingdom—for one cannot call certain lemurs flying animals, though they use the stretched membranes between their paws and their flanks to prolong their leaps from branch to branch.

A return to one of my previous studies seems necessary here lest I be accused of contradicting myself.

I wrote in my *Life of the Cricket,* apropos of the sensorial system of the insect, that nature lets those organs which are not indispensable to the life of the species atrophy of their own accord, and that was taken ill as being a confession that simplification signified progress. Now I do not understand the word progress in the sense in which the eighteenth-century philosophers took it and in the sense in which certain old-fashioned contemporaries, following them, take it;—men who still hold the timid dreamers of the encyclopædia for evangelists and prophets. I use the word in its etymological sense; in speaking of a creature that is progressing more quickly than we are, and is more simplified, I do not mean that it is better or worse, more beautiful or uglier, happier or less happy— for there is no

common instrument of measurement for this and no one can be judge—but I mean simply that the species is more evolved, nearer its end, than is our own.

This said, I think I shall have no further difficulty in maintaining that simplification is synonymous with progress, at least in so far as the very successful or indifferently successful animal organs of nature go; animals which, as such, still exist or may deserve to exist when humanity is no longer extant. But I have also written—and here I am teaching no one anything—that in the infinite diversity of its creations, nature, on our limited planet, has not always been well inspired and that quantities of creatures have to remain in the state of mere attempts, either too complicated or too little capable of simplification, and therefore destined, in consequence, to a more or less rapid disappearance.

I believe I may affirm that at present the Chiroptera represent the last in date of these vexing attempts.

The flying reptile has existed for myriads of years, without any great success, a little creature, timid and awkward, ill protected, destined to perish of hunger or misery—the ptero-dactyl. The first bird, or archeopterix, had coarse feathers, almost like scales—but remained of the reptile family by

the muzzle beak, provided with complicated dentition, which allows us to consider as somewhat more than legendary and mythical a period when chickens had teeth, even if it might be a little too audacious to believe that such existed on the planet Earth when men appeared. What it is important to recognize here is that flying reptiles, in order to persist, had necessarily to evolve, to singularize, and almost always to simplify into innumerable species of birds.

Let us consider now the Noctilionid, an attempt at a flying mammal. Its flight, as we have said, is frustrate and imperfect, which is not saying that it is simple, for simplification and rudimentarity—to employ a frightful word for lack of a better—are totally different matters. The studies which preceded the beginning or accompanied the accomplishment of artificial human flight have cleared up the principles of the flight of birds in a sufficiently satisfying manner, for us to be able to-day to rejoice in a full knowledge at least of the methods of the great flyers and soarers, principles to which our modern seekers would have given only a somewhat less winged and suave form if they had taken the pains to reread some of the pages on this subject by the prodigious Leonardo da Vinci; and indeed, even to the average man the flight of the

seamew or the eagle seems a harmonious act, facile and simple, while that of the noctilionid is visibly the result of exhausting and precarious acrobatics.

If I have gone over with a minuteness, which seemed to me boring and pedantic, certain anatomical observations upon little-known insects, it is because I could not forego bringing to light an unrecorded detail, however trivial it might seem. Here, and I am very glad of it, it suffices to describe in the Chiroptera the organ which permits the animal to sustain itself in and proceed through the air. This organ is a monstrous hand at the end of a vigorous arm, which is ridiculously short, but a hand all the same; I may be reminded that the wing of a bird is also a transformation of an arm, a forearm and a hand; only in the case of the bird the transformation presents itself as a synthesis, a simplification, and an adaptation, while in the case of the Chiroptera one can only speak of wings by a stretch of language for the sake of facility and ease. They have phalanxes and bones softened as if by their exaggerated growth, their joints more or less flexible in every way, whose equivalents are found, reduced to proper proportions and governed by a felicitous muscular mechanical system, in the hands of men

and apes. There is really a prehensile organ, atrophied by giganticism, if one may call it so, and it all seems as if a cruel fate, in order to permit Noctu its necessary flight, had amputated his arms and his hands.

For the same reason the same fate has practically amputated his legs, which are almost immovable because they have to collaborate in the fixation and stretching of the deplorable sails fastened to the "go-as-I-push" bones of its hands. Birds that have no need to fly, like penguins and even chickens, or who do not want to, like certain parrots, are at the least provided with good solid hind feet, useful for running or climbing; moreover, they possess a marvelous prehensile instrument, the beak, and very complete it appears to us men. With the beak it is not only able to nourish itself, but does it in the most comfortable way in the world; it uses it to defend itself, to establish those marvelous little buildings or weavings which are its nests, to make its toilet, to smoothe its feathers, and to destroy lice. The chicken can scratch or dig up the earth with one foot while firmly standing on the other; bent underneath, the feet serve as cushions to balance them during sleep or repose. Amongst the climbers already mentioned and the clinging, the same feet are defensive or offensive arms, and

indeed supplementary prehensile instruments which the beak may borrow.

How imprudently the good La Fontaine proclaimed on the part of my little friend, "I am a bird," or, "I am a mouse," according to the needs of the case.

What is there in common, I beg you to tell me, with the mouse, so agile on the ground, whose little front feet are so cleverly prehensile?

Or what in common between the bat and the bird, majestic on foot, a serviceable runner, admirable climber and excursionist, with its gift for climbing, its long-distance jumps, and high flights without any fatigue or breathlessness?

II

YET, nevertheless, we have to live, to go to the end of the possibilities of our race, by virtue of the obscure orders given by nature, however miserable the means given us to obey with; we must go on living till the time, more or less far off, when we can no longer try to obey and the species dies out; for it is thus the disinherited species pass and the unlucky attempts of nature are erased from the number of living upon earth, if they are really too unlucky to be able to transform or adapt themselves, readapt and simplify themselves.

Almost absolutely infirm on the ground or in the nest, Noctu is reduced to remaining in the kingdom of the skies, which, after all, is only a last shift for it.

But there are many other shifts it has to resort to. The insects that it can reach and eat haunt the twilight only for about five months in the year. It has to eat double what it wants and accumulate reserves of fat to prevent dying during sleep of the six or seven months of hibernation. Indeed, a great many bats die during the course of the winter without having attained the age limit; this limit for the little creature of which I speak may be estimated at four or five years, if the creature has eaten enough during his five or six series of fine days.

Following up the same course of thought, we observe that Noctu's annual chase can only take place during five out of every twelve months, that its daily hunting is limited perforce to three or four flights of ten minutes each. We may estimate it at one out of each twenty-four hours as the indispensable maximum that the unhappy creature can allow itself, this inactive, amputated, shackled creature. The insects upon which it feeds fly hardly longer than an hour after sunset; and if by idleness or negligence it lets the propitious moment slip, it is forced to give up the game, with the greater chance

of dying during the winter for lack of the indispensable centigrams of fat.

Let me say in passing that, starting out early to hunt or to fish, I have often seen noctilionids in the morning twilight. But it would be a mistake to imagine that this is the exploit of a more avid, courageous, or far-seeing specimen; for at that hour the ordinary prey are hidden in the dew of the grass and branches, where Noctu would never have the presumtion to search and catch.

These abnormal and unseasonable flights, accompanied by plaintive cries, have a very simple cause—the Noctilionid, which cannot see very clearly either in complete daylight or complete dark, lost its way the day before, slept in any haphazard shelter, hanging to a branch or coiled in the cornice of a gutter, and is now searching by the light which suits its eyes for the accustomed nest. Male or female, Noctu already has its spouse chosen in early spring, who, luckier, the day before, has already regained the common nest and serves as guide, answering its cries; or at least the poor little lost beast hopes—

Nature, decided to play the part of stepmother to Noctu, has denied it that mysterious sense of orientation which so many animals have and which is more necessary, too, to this pitiful little creature than to many others.

To nourish itself is the chief virtue for the little animal, a virtue that it has to increase when its child is born, and its general misery allows each couple usually to bring up only one child. It is fortunate that this offspring comes in the most gaudy and nourishing season of the year. The first fine days of the year add to the little twilight insects only a few flies or tiny insects, difficult of capture, but June and July bring out into the open, at evening, much larger, more interesting and substantial personages. The beetle especially is sought after for its fat flesh and fine profits; Noctu and the spouse stuff themselves as they fly, and gather up what they can in the nest, if they have time, in case the next hunt should be less fruitful. It happens that they kill a good many of the flying prey that they take home, but if they consent to eat dead prey at all, they must be just recently dead; otherwise an invincible disgust that cannot be overcome by the strongest attack of hunger impels them to sweep out with their wings the minute cadavers which they were unable to consume during the night and the day following the lucky hunting. Indeed, it was thanks to just such little piles of munched corpses at the base of a wall, or foot of a forked tree, that I often found the spring or summer nest of a couple of bats and was able to watch their

housekeeping with a chance of certitude and interest.

Noctu does not, moreover limit himself, in these hours of merrymaking and gayety, to the ordinary May bugs and divers kinds of beetles of the smaller size, which haunt the hour we call the hour "between the dog and the wolf." No prey seems to intimidate its strength and courage, easily confused, I may say, with its will to nourish itself upon the best, during the rare instants when an avaricious nature allows it to do so at all.

It attacks the big beetle of the pines; this is a majestic Coloptera with ivory wings dotted with dark brown or black, which on account of its two colors, the admirable plumes formed by its antennæ, especially in the male, and because of its jolting and affected gait, makes one think of a first-class funeral hearse. This insect swarms at the beginning of pleasant summers in the forest of Landes. When it is in love or when one teases it, it gives out an odd, vibrating note, a crystalline zee-zeeing, due, explains the master of Sérignan, to the simple rubbing of the hind segments of the abdomen against the hind portions of the elytrons held immovable; so that when this beetle is caught by Noctu, one has the illusion of hearing Noctu speak in a language which is not its own, and the super-

stitious cross themselves and some professional naturalists say very absurd things about it.

In these heaps of corpses of which I spoke just now one finds the remains of even larger winged prey whose capture cannot be without danger to Noctu; large horned beetles, whose grip, when the game is not well seized, cannot be without risk of choking or disemboweling the frail aërial huntsman; the large night-peacock moth, with a spread of wing almost equal to its own, and with a much more safe and sure flight. Well, what can one do? It is more than ever in moments of vital urgency that one has to battle to the death; if humanity has ignored this up to now, or ever doubted it, the experience of the last few years would have made it plain.

Here we are, then, in the presence of a supreme battle, fought by an unfortunate subspecies of animal, doomed beforehand. In a little while, in twenty thousand years, perhaps, the minute flying mammal will have gone to join in our fables the chicken with teeth and the flying lizards, those lizards who were the grandparents of these fabulous flyers.

Some ten thousand years later, the other flying mammals will have disappeared in their turn, though they are much more favored by nature, even the great red bat of Malaysia and the vam-

pire on the borders of the Amazon; these creatures, cleverer or luckier, haunt the countries where life swarms the year round and where death from inanition during hibernation can only take place occasionally; stronger, capable of attacking animals of their own size by day and even larger mammals, man included, when he sleeps, they may even consider hibernation as a rare vital necessity. If, as is stated, the flying foxes of Borneo or Java practice it still, it can be no more than a vague atavistic memory, a sort of ritual or traditional gesture. Moreover, certain of these species are voluntary fruit-eaters, while the rats, the rabbits, the wild hogs, and all the other animals upon which they levy a blood tax live at least as long as they do, from the first of January to the feast of St. Sylvester, while the flying insects upon which the Noctilionids feed either die or fall asleep in autumn, not to awaken until the approach of spring; and then Noctu itself, more or less dozing, is hungry, very hungry, and has been so for days.

I believe it is above all, by hunger that nature rids herself of the creatures for which she has no further use; it is by hunger that she invites them to go and enrich the collections of future paleontologists.

I know that man, since ever he has considered the planet Earth as his fief, has annihilated and

brought to the final agony many species of animal, and his presumption might easily lead him to believe from this that he participates in the councils upon which depend innumerable destinies of living creatures in this world. But it would be too human and vain to admit so monstrous a confusion. It is probable that in twenty thousand years beavers, ermines, seals, elephants, and whales, and the larger wild animals will have disappeared along with the humble and futile Noctilionid.

But their extermination will not have been produced by the same causes. Men as we are, we can affirm that if these species have disappeared by our deed, since historic times or even relatively recently, it has been due to our feeling ourselves disarmed, feeble, naked, and, finally—consecutively, perhaps—to those habits of commerce and lust for lucre which have created the need to wage war in the midst even of the human family, while wolves do not eat one another, and among most creatures murder and the desire to kill exists only for sentimental reasons, before and just after the season of love.

Humanity kills for fear, for rapacity, sometimes even for pleasure, kills and annihilates creatures and species; and any means serve. Nature does not kill or annihilate; she lets creatures die out, a familiar phrase thrown out at hazard a little far-

ther back, and which seems to acquire virtue as I use it here.

Nature, then, has clipped off arms and legs from the large and little Chiroptera; but from Noctu and various analogous varieties in our climate she has cut off, too, so to speak, provisions, and moreover—as I have indicated—appetite. In despite of my wish never to read the work of my illustrious forerunners, after I have written of certain animals, I am sometimes forced to take recourse to it, especially when my memory imposes upon me the observations of others, which seem to contradict my own and upset the result of my conclusions.

Thus I remember a passage in Buffon, telling of a walk in the grotto of Arcy, where he was surprised to find a sort of manure, a black heap composed of fragments of insects, flies or butterflies, which he recognized at once for the excrement of bats. There was dung on the ground of the grotto there is no doubt, since bats had sheltered there, but above all there was there, just as I have observed it at the base of walls or the foot of trees, the remains of a lucky hunt, which could not be consumed in time and which these dainty creatures scorned. In this heap of matter, after a certain time, not a vestige of wings or feet could be de-

tected by a microscope any more than by the naked eye. Hence for Buffon to believe in the voracity of Noctu was but one step; and he made it so blithely that he affirms these animals, when they enter a kitchen, hang on the hams suspended there to devour them.

It may happen that Noctu suspends himself on a ham, but it is only to catch its breath a second, as it might hang on the cornice of a wardrobe or the rod of a curtain. As for regaling itself upon ham, or any other meat cooked or raw, in kitchens, —as Buffon reports—that is a solution of the problem of existence which the European Chiroptera have never faced for all the myriads of centuries in which they have been condemned to death. But Buffon has one excuse. He constantly observed by means of correspondence, and I believe that the travelers and Colonial functionaries of his day, who answered his questions with so much grace and in such good style, were often no better informed than he himself. Thus M. de la Nux, writing him in 1772 from the island of Bourbon, about the red bats of the Indian Archipelago, assures him that these animals are exclusively fruit-eaters. Recent books assure me that this is not so, but I prefer to continue not to occupy myself with things that do not concern me—though this has its own

charm—at least not with things that I have not seen.

Another reason for excusing Buffon is that it is excessively difficult to observe bats in Europe either at liberty or in captivity.

BOOK III
NOCTU AT HOME

I

EUROPEAN bats are difficult to observe in captivity. Indeed, they are supposed not to live at all in captivity.

Old Pile told me this long before better instructed people, professional and amateur scientists.

So as soon as he had finished launching the insolent praise at me, which I recorded in a previous chapter, he hastened to declare, with a vexed air—for in joy at my capture I had forgotten the good man:

"Now, if you really love animals, give this one a good-bye kiss and let it fly, for to-morrow you will find it cold and dead in your box."

The family repeated the same counsel in various forms, upset at seeing a boy of my age pleased with such puerile toys. Alas! when I think that I still cherish them!—But in despite of counsels and mocking, Noctu was installed in a cage where the preceding year I had raised white mice, shrew mice, and other horrors. I must say that all the way which separated Jolibeau from my house my bat behaved pretty badly and never ceased to groan and to abuse me in its own language; for Noctu has just as much of a language as a monkey; but we will return to that later. Then as I stopped to examine

it under each gas lamppost it almost escaped—having recovered from its slight giddiness, the imp!—and then I put it my pocket.

There it fell immediately silent, pretending to be dead. I thought, my heart beating and intoxicated by my triumph:

"She is beginning to get tame!"

I installed a cage in the dark corner of my room, not without fitting it out with a saucer of milk and another saucer containing ten tiny morsels of raw meat; the next day these provisions were still intact, and in the darkest corner of the cage, in the crib where I had installed a nest of hay, Noctu, her tiny eyes blinking, looked, trembling with terror, at the enormous hand stretched toward her with the evident desire of annihilating her this time.

This time and several of the first times that I renewed this gesture, she did not cry out, resigned to the inevitable, but her membranous wings shivvered like silk chiffon hanging on a bush, in a light wind. Undulations of terror ran over the almost bare skin of her tiny face, ape-like or almost human at such instants. I have such a terror myself, mingled with love of those who are greater than I, that I wanted to reassure this little creature to whom I, a man, seemed so great:

"Don't be afraid; I know how it feels; I have felt the same way myself in the face of the un-

known; when big, mysterious, invisible hands seemed at certain moments of my life to reach out toward me with doubtful designs. Perhaps I was wrong to mistrust their intentions; perhaps they were coming toward me full of gifts and caresses—"

For two days I tried silently to reassure Noctu, holding her in the palm of my hand and caressing her gently with the other. Noctu, after five or six such experiences, seemed less terrorized when I wanted to pick her up, whether by daylight or at night, from the little hay bed whence she never moved. Then the hour came—it was the morning of the second day—when she spoke to me no longer in a tone of foolish abuse, but this time in a tone of reproach. That morning Pile came to town and stopped at my grandfather's to offer him a fine basket of peaches. He was generous by nature, certainly, but this time I made myself no illusions as to the real sentiments which inspired his generosity. He came to get news of me and of my bat; and when he saw that she was still living he was thunderstruck.

"Well, that is a creature that does not want to die!"

Curiosity pushed him to the point of wishing me "Good day" in the room where I was sentenced to fulfill my holiday tasks. He threw up his head

when he heard Noctu, quiet in my hand, give out little cries when he wanted to caress her, too. Perhaps he suspected me of being something of a sorcerer, for he shortened his stay, contenting himself with saying again, "As for that one, it is certain she does not want to die."

To tame, to bring up, to train, those are miserable words, of shameful signification, and they express badly certain humble and yet great realities because of their traditional ideas and sentiments. Lay aside the training which terrorizes, brutalizes, vilifies and degrades, and the trainer, whose art consists in a long, innocent, but very puerile and vain patience. How does one tame animals? I do not like the word 'tame;' it is only one more proof of our incurable anthropomorphism, our tendency to look upon ourselves as the kings of creation, to consider ourselves as the center of this earthly universe, or even solar or stellar universe, to measure everything by ourselves, who are only one rung in the ladder without commencement and without end. I have to use the word, none the less, out of laziness and for convenience, after trying to explain what I mean by it.

To tame is to weave between ourselves and some other earthly being, more or less distant from

us, those obscure and precarious bonds that yet exist, to throw sometimes illusory bridges over the abyss which separates our way of reflecting the universe from theirs. Domestic animals are atavistically tame. The trick is to accomplish in a few days or weeks the work which has taken centuries, and to nurse a sympathy, partial and in no wise hereditary, between man and the non-domesticated animal. Alas! to treat of such a subject, after so many years of experience, would take me a good half of what normally remains to me of life.

There are so many miracles around us, above us, realities still and perhaps forever obscure to our human senses, that there is no profanation in recalling here a fact, popularly known and moreover almost exact. It is thanks to immobility, or very slow movements—dictated almost always by human instinct, up to its most conscious and charming tricks—that the Hindu fakir, the hermit of Thebaid, the Little Poor Man, and the bird charmer in the Tuileries, have managed to make friends of the gray monkeys of the Himalayas, the jackals, our sisters the larks, and our good friend the sparrow. But when it is a matter of beings nearer to us, of very refined sensibilities, immobility is not enough; one needs as well an interchange of kindly dealings whether these be voluntary or not.

Strange friendships are formed sometimes be-

tween animals of different species; friendships whose reasons are sometimes clear to us, sometimes incomprehensible. In despite of the proverb, dogs and cats often get on very well together; this happens oftenest when they are of the same age and have played their first games together; their hostility is often nothing more than a mutual curiosity which has turned out badly, a sort of animal jealousy of each other at the human fireside, a jealousy disdainful on the part of the cat, noisy and sensitive on the part of the dog. But sometimes the curiosity of which I speak turns out well or in some original way. My Belgian shepherd dog, Patou, every time my Siamese cat, Nique, had little ones, seated himself beside the litter and lived on the best terms with them all. During Nique's absences he would look at the kittens with tender eyes, licking them and groaning gently and taking such good care of them that it sometimes happened that he resented the return of the mother, momentarily considering her as an enemy or a rival. Nothing less was needed at times than the argument of blows to show him that this rôle of dry nurse was dangerous for kittens and ridiculous for a big, old dog like him.

The same Nique, having only three kittens of her own, conscientiously nursed a white rat that I

had added to her brood. I even think that she felt for this animal, that must have seemed to her timid and ill begotten, more solicitude than for the others. A month later the three kittens and the white rat played together under the vigilant eye of the mother; and yet I must remark that this creature from the Far East was a ferocious and exemplary rat catcher. After seven years the rat nursed by the Siamese cat lived on, but he is turning gray, and that means old age for a rat, too.

I have known a truly amazing friendship between a chicken and a rabbit, who would never leave each other, living in the lower yard of a neighbor of my paternal grandmother, in Mayenne, and who when they were separated showed a kind of despair. Can one call this a reciprocal taming? I think that, in using the word friendship, as I have just done, one comes much nearer to giving an account of the fact as it is.

Among animals of different species, chance alone creates the contacts upon which these few banal sympathies rest; between men and animals it is pretty much the same way, except that man deliberately seeks out the points of contact; but it is, after all, chance which helps him to discover them, and we are almost always unable to define them

rightly, to classify or give receipts for them. A thousand times more than between man and man, the two souls of animals and man represent worlds hermetically sealed, where a common measurement exists only in the fewest and most fortuitous of cases. We grope in the dark to find out the gestures that irritate or flatter, frighten or reassure those whom we would win, either for sheer sentimentality or need to know, even at the price of stooping down to them.

I have said elsewhere that personality is the momentary perquisite of man, one of the loans which the indulgent Usurer offers, and that only those animals on the earth who are nearest to our species or live in close familiarity with us can, at this stage of the world, participate in the privilege, if it is one.

Going over all my memories and compulsory records, I come to recognize that I was too strict on this point; if personality is entirely abolished among the insects—the cricket, for example—it does, nevertheless, persist and sometimes in a most troubling fashion among less evolved creatures—fish, birds and mammals, other than bimanals—and this increases the complication that there is in throwing a bridge between a creature like Noctu and ourselves.

Let us clear things up a little. Let us cite hastily and even confusedly a few examples. The noise by which it is classically established that we should call a cat, to offer it a dainty or a caress, is humanly produced by a hiss into the air, short and violent, between lips slightly pouted and almost completely joined. The same noise leaves most dogs utterly indifferent, even when their master emits it; for them it must be translated into, "Psitt." It visibly displeases rats or mice and terrifies rabbits. It may be objected that these are rodents and designated victims of the domestic or wild feline. Maybe so. But the same sound enchants a badger, excites a fox, prodigiously astonishes a pheasant or partridge, makes thrushes and swallows dreamy, throws a weasel into a state neighboring upon epilepsy, and it would risk alienating you for a good ten days from the most tender and attached of your adders.

Many long pages might be written on the power of such sounds—and others, too—to provoke diverse impressions according to species, and even upon the individuals of some superiority among the species. If I were to push this further, and tried to consider the effects of horror and pleasure produced by objects upon other beings whose senses, humanly named and catalogued, are offended or de-

lighted, it would lead to consulting the experiences of innumerable scientists and piles of volumes.

Let us clear things up again: the perfumes of the most precious flowers in our climate—roses, wistaria, lilacs, hyacinths — irritate almost to the point of death my friend the grasshopper; one knows into what a state the sound of a gong or even a blow with the fist on an old boiler will plunge bees at the time of swarming; the bull is supposed to be exasperated by the color red—which is perhaps not as exact as is popularly supposed; a barricade of ultra-violet rays will completely upset the nocturnal butterfly and certain diurnal insects, as if they were flinging themselves against a disobliging windowpane; and the same rays are full of charm for the little animal of which I am writing. Most mammals like caresses, in the sense in which we usually take the word, whereas other creatures, even tame snakes, prefer giving to receiving them. A daughter of Patou adored having faces made at her—quite the contrary of most dogs—whereas Patou himself would throw himself ferociously in the face of any unknown who dared allow himself such a liberty. And Nique, whom the mere sight of a bit of yellow stuff enervated in the extreme, having deceived her husband Sim one spring with an adventurer of the neighborhood and been

brought to bed of an Isabelle-color litter cold-bloodedly strangled the newly-born brood because their raiment of yellowish gold exasperated her visual sense.*

It appears that there are people assiduous readers of the master dramatists and the psychological novelists, illuminated by gleams that have pierced through, thanks to explorers, from the depths of Brocéliande, who do not doubt that they have a great advantage over their fellows in their power of conquering the friendship or love of human beings.

But who will teach his kind the art of getting into the good graces of a lizard, a frog, or a bat?

II

YET it is a possible thing. How? The most exasperating and touching point in the whole problem is that though one may be able to tame an animal oneself, one is yet unable to offer any solution. For the same holy mystery reigns that governs a true friendship between man and man ("because it is he, because it is I"), and the sym-

*Translator's Note: Isabelle, the daughter of Philip II, whose husband was besieging Ostend, vowed not to change her chemise until the city was taken; as this did not happen for three years, the particular color that the chemise must have been remains in the French language to-day, Isabelle color.

pathy that grows up between Noctu and her captor by means of the more or less disinterested care that he devotes to her. There was no magic about it, though Pile suspected it! He had said to me, "For surely, she does not want to die;" he added even, after he had left me, to my grandfather, who loved animals and who reported it to me, "One might think he had tamed her." And it is true that when Pile came for the news the first time, I already had a feeling of having conquered the friendship of my little Noctu.

From her abusive tone, as I said, she had passed to a tone of reproach when I took her up in my hand. I caressed her as I would have done my cat or my favorite dog of the day, whose names I no longer remember, but I used for these caresses, instead of my whole hand or two hands, only one finger, because of the frailty of the creature. The reproach seemed to pass into supplication; then a sharp word, so sharp and so high that it was not perceptible to all human ears, which had in it a modulation of despairing resignation.

"She does not want to die and she is being tamed," said Pile. Alas! I was bold in his presence! Certainly she was being tamed, but whence did my rustic adversary get the idea, in that childish tilt, that Noctu did not want to die?

For Noctu did not eat for nearly forty-eight

hours; the dainties that I gathered in her cage remained intact and those that I pushed up to her little cur or bulldog muzzle, while I held her in my other hand, had no result other than to make her throw back her frail, wrinkled, grimacing little face, as if she preferred the great shadow of death.

My heart was torn by this. What could I invent, what kind of persuasion could I use, to break up this willful starving which might prove fatal at any moment? Several times I had offered, unsuccessfully, flies, locusts, grasshoppers, and beetles to my boarder. I can still see myself, as if the thing had happened yesterday, pushing up a rose bug, freshly captured from the heart of a rose, against her closed mouth; usually when the human hand catches the beautiful Coleoptera, with its green-gold shell, it pretends to be dead; then, frightened at being held up in the void, it begins to work its antennæ, to draw up its legs, and to kick. The feet, doubly and solidly clutched of the rosebug, yet scratched the muzzle of Noctu, who ground her teeth, became angry, and, being angry, bit, and biting tasted, and having tasted found it good, and no longer sulked against the demands of her stomach, but ate, ate indeed with a good appetite. My faith! What a triumph!

It was no longer precarious and did not end there. From that instant Noctu accepted all the living prey that I offered. Having fasted long enough, she gave proof of her gluttony, especially when she had to wait a little at the ordinary hour for her repast—that is, at the fall of night. I might have expected that at this hour she would be agitated, turbulent, a prey to the longing for her daily promenade. But there was nothing of that. The promenade is only a means, an atrociously fatiguing means, an exhausting resource. Its object is to accomplish her duty of keeping alive; now able to attain the end without trouble, Noctu rapidly adapted herself and apparently desired nothing else.

After a little she would catch, herself, whatever moved in her cage; she crept, she dragged herself about on her elbows, or fists, rather, the poor infirm creature, in the pursuit of crickets whose jumping legs had been amputated, which I furnished her in quantities. She demanded more. She showed, moreover, a marked preference for tiny prey, flies and ladybirds; she adored milk and licked it voluptuously from my finger dipped in the liquid; but I had to wet her muzzle several times in the saucer for her to understand that usage and become accustomed to feeding herself.

She did not disdain water game, either, and

willingly consumed frisky tadpoles when I offered them; she did not even think of crying out, however softly, "Hurrah for rats!" when I placed in the cage, a few centimeters from her muzzle, one of those baby mice which my gray and white mice produced in their cages in such excessive abundance; indeed, this seemed a special delicacy to Noctu, very choice and tender.

But during her captivity I never saw her take pleasure in any nourishment which was not living and did not move. I must say specifically that that was a form of gourmandise or particular taste of her own, and not the effect of a partial or total obliteration of the visual sense, such as happens among other creatures, notably among most frogs, who—and I hope to prove this some day—perceive movement, but not the greater number of colors catalogued in the human spectrum, of which, indeed, only two or three seem to them gustatorially interesting, if the colors remain inert and immovable. Noctu, even when famished, shows great repulsion at dead meat. My first captive of this species never of her own accord touched the delicate bits of raw veal, lamb, or beef that I placed in her cage. By dint of coaxing, when we were the best friends possible on this earthly sphere, I succeeded in making her swallow, while I held her in my hand, two or three fragments of veal about the

size of a grain of wheat; but she protested in her own way, seeming to say; "Really, no, truly, sir, I am not in the least hungry," and I have a very definite impression that her accepting such nourishment was merely her way of proving her courtesy and knowledge of the world; nothing more.

I am telling this to relegate definitely to the region of legend the tales that Buffon tells about Noctu and her sisters and her cousins getting into kitchens and pantries, to regale themselves upon ham and other meat, fresh or high, raw or cooked.

Oh, happy days of my pleasant childhood! The child who has succeeded in taming a bat and making it live in a cage could certainly not be any prouder when a benevolent editor, who was certainly a little under the weather that day, offered to publish his first collection of verse. The part of my native town where I lived with my father and my grandmother began to take a serious interest in my experiences, even to be touched by them. A bat brought up in a cage and almost tame! Perhaps in earlier ages the friends of my family would have counseled them to have me exorcised or even burned; but since the birth of the third Republic we live surrounded, even in the provinces, by a

splendid illumination of progress such as has never been known in the world before. At least ten good people, who had learned in school that the bat, who had nothing in common with the canary bird or goldfinch, did not know how to live decently in a cage, looked at me with admiration tempered by doubt. Others preferred not to speak of it when my grandfather, who was at bottom much interested in my experiences, would give them the latest news. The most moved was old Pile, who had accommodated his personal physics and metaphysics to the miracle, and who now explained:

"There are a good many lunatics among men; and as bats cannot be brought up in a cage, we shall have to admit that there are cases of lunacy even among beasts, since this one has been tamed and refuses to die."

Noctu did not want to die. She knew me very well now, and I am proud of being able to affirm that in her own manner she loved me; she even licked my finger by way of thanks when there was no longer the least drop of milk on it.

We had some admirable conversations with each other, in my hand, where she was accustomed to come, and after the eighth day it was no longer necessary for me to catch her. Her little cries, her words and phrases, for which in French there is no special denomination, alphabet or notation, dic-

tionary or grammar, showed me, more clearly than I could prove it to another, that she trusted me and had all sorts of things to tell me.

She would look right in my face; she would repeat at moments, two or three times, the same syllables right after one another, or rather the same very high notes, as if she were insisting upon some interesting point; she would not accept a fly or other dainty without conscientiously explaining to me what it was all about. Poor child that I was then! poor man that I have become since! Many times I had an illusion of understanding, the presumption to try to translate. I would nod my head by way of assent, as if that would prove to Noctu that I was on her side, heart and soul.

For the rest, the essential thing was that not only was she becoming more and more familiar and at home, but she was growing fatter, becoming beautiful, and was in excellent health, to employ an expression of old Pile—and, yes! decidedly she refused to die.

The fourteenth day of her captivity, when jumping from bed in the morning, I wanted, as was my habit, to seize Noctu from the small bath in the cage where she slept, I had the painful surprise of being ill received. She ground her teeth and abused me as if I had just fallen upon her and gotten her in my possession, free from the air, a few

minutes earlier. Her twenty-eight minute teeth tried to bite me, although she could hardly escape knowing that that would be very difficult.

Sad, stultified, but not intimidated, I nevertheless caught my little boarder, as I was in the habit of doing every day, to talk to her, caress her, and offer her dainties. But she fought diabolically, hurled insults that I could not hear always, in tones that ranged I do not know how much higher than any musical instrument.

It was then that I perceived, on the hay and the cotton and the lint that garnished the nest so softly, the most astonishing thing;—two scraps of cigarette paper wrapped round a cherry stone, two minute bits of gray crepe de Chine drolly twisted, at the bottom of something that looked like a sort of sombre face—and it moved feebly and gave out tiny little cries.

So that was why Noctu did not want to die!

III

SO that was why!

One must take this as a more or less fantastic or sentimental interpretation on my part. If I had managed to pass for a sort of magician in the eyes of old Pile, who, as a child had doubtless tried to bring up bats in captivity, it was that fate had

dropped in front of me on the road to Jolibeau a pregnant female.

In these unpretentious studies there is nothing but the naked recital of my own experiences and some of their more evident and immediate results. Whatever my horror of presenting my observations under the aspect of records which give at times an air of infallibility to facts meriting little credit, I am forced at this point to enunciate, as briefly as possible, things that my eyes have noted for fifteen years or more and to inflict a few facts upon my dissertation.

I must add that my observations here treat not only of Noctu, the little one that flew so near my head, but upon all European Chiroptera, of which, formerly only two species were known, of which Daubenton distinguished five, and Buffon seven—for fear he might overlook one, as often happened—and I will content myself more modestly with avowing that I know three, or four at most; that they are the common bat, or the long-eared bat, the "Noctilionid;" the horseshoe or the seritinous bat; the pipistrel, or red bat; and the barbastrel, or vespertilion. Among these little beasts there are only minute differences of build, shape of the ears, or muzzle, and that of color, ranging from gray to red; briefly, such differences as prevent a bulldog from copulation with a cur; and if I cite these two

species of dog among so many, it is because I have had in my hands a mongrel Noctilionid (whose muzzle, as I have said, is like that of a cur) and a serotine, a bat of the same size, but possessing, like the red bat, the pointed ears of a fox or a wolf-hound.

The same cage, the same exposure to very much moderated light, the same accessories for nourishment and nest, the same care, in fact, I have given to all my boarders.

Here are the results:

1. Out of seventeen males, two only consented to feed a little. All the others died prematurely in the cage; the one who lived longest—one of the same species, by the bye, as Noctu—died on the tenth day of his captivity; the other, a male of the great species with red hair, gave me high hopes for forty-eight hours, fed upon milk and beetles, then fell into a sort of melancholy, refused all food offered by hand or laid within his reach, and on the seventh day I found him stretched out cold and stiff in the morning.

2. Little ones taken from the nest, whatever their sex, died either in a few hours or in two or three days, when they consented to suck minute ends of absorbent cotton dipped in warm milk.

The one that lived longest was a sort of monster, converted by my industry, some twenty years ago. When I captured it, it was about forty-eight hours old, apparently. Impelled by a sort of cruel curiosity, a curiosity for which I have always had a theoretic horror and to which I have not succumbed for many years now, because I believe it scientifically futile, I tried to make a sort of quadruped by setting free the membrane destined for flight, liberating the hind legs, displacing the muscles which tied these to the bony end of the trunk, cutting the bones of the gigantic hand into sections, and cutting the minute arm as far as the humerus only. The wounds healed normally in twelve hours and the monster suckled with rare appetite. He died, none the less, on the fifth day, not of the wounds I had inflicted and which were well, but, like all the others, though later than they, of disgust at living in a cage.

I shall never again try such an experiment. Having done it, however, I would be vexed not to record it. There may be men crueler than I am, and there are certainly more skillful specialists in animal surgery who could carry out the operation better.

3. Of fourteen females all were failures and refused to feed and died.

4. Of twenty-two females who produced off-

spring in the cage, all accepted nourishment after a period varying from twenty to sixty hours. One only died after producing her two young ones, but that has nothing to do with this discussion; indeed, of the twenty-two females observed in these conditions, three others, who did not die after nursing and bringing up their posterity, all had twins.

I beg pardon for having furnished figures, but it seems to me that it would be difficult for any one to doubt their value as evidence.

I do not know what Noctu thought after she became a mother, she who had loved me so much and so well before. I had the good taste not to notice her grimaces and her menaces; in fact, I watched her grimaces with delighted interest and her teeth never managed to break my skin. All sails spread, wings wide, she brooded jealously all through daylight over her gray nestling. At night she would accept the refuge of my hand, my invitations to supper and to conversation.

She showed a real greed for milk. We understand that. And she had, too, at the times when she liked me to take her up in my hand and caress her, the most human expressions that I have ever seen in the face of an animal. I have had friends among cats, dogs, snakes, frogs, and insects; but they none of them told me willingly of their little personal affairs; and I cherish the sweet and rather

puerile certainty that Noctu did not fall short of this, at this time in her life.

Oh, such little words, vocalized so high up that everyone would not have been able to hear them. The little scrap of silky chiffon, maternal and friendly, between my rough, childish palms! A bit of twilight shadow, fallen from the sky and carrying on her life and her being in the austere and empty chamber of an indocile student, so inattentive to the things that men consider important. I knew very well, then, what it was she tried to explain to me, and my nodding head approving her has nothing ridiculous about it to me. Even if I knew music I would not try to notate the language of my little friend in the month of August, 1896. I understood it however. She was telling me diverse and very beautiful things; what is accomplished in the heart of the most unfortunate of beings by the need for life, and all that that teaches of resignation and will power at the same time.

Yes, one must live, and so Noctu lived and nursed her young.

Like a woman, like a lady, with gestures no less noble and almost human, and with a sort of modesty she would veil her breasts with her wing, breasts placed just as are those of apes, our mothers, and our sweethearts. In the nest,

which had now definitely become a manger, Noctu, rested on her four paws, if one may call them so, the top of her body resting on her elbows and the rest placed in such fashion as seals rest, covering her young, warming them and giving them the breasts in that way. But when the little one turned gray from the greyish color it had been, and opened its minute eyes, it was a different story and I shall never see again with surprised and fresh eyes such charming and touching ways. Like a nurse in a well-to-do family, enveloped in a cape so that she may nurse the baby in its folds without displaying her charms too much, so Noctu, really seated in the corner of the manger, dispensed the nourishment from her own body, under the shelter of her great stretched out hand, which she folded like a veil over the touching and sacred mystery. The little one was a greedy little creature, destined to give her bad days sometime; he bit her nipples until various human remedies, such as vaseline and olive oil, seemed to me indicated as remedies. These so disgusted the son of my friend that he weaned himself the eighteenth day after his arrival in the world; he then had a spread of wing almost four centimeters across and two and a half in length; he knew how to talk and for hours he would insolently demand flies of me in his own language.

He obtained them, but despite of everything he became neurasthenic. Unlike his mother, who always showed me a discreet sympathy, his friendship was encumbering, arrogant, and fault-finding all at once.

Nevertheless, I consulted my calendar with all the anguish that such a matter brings to one at fourteen; September was already one week old and I had a family demanding the most brilliant future of me.

As for the rest, I knew as much and more about Noctu and the education of her son then as seemed to me valuable to keep for the time being. This is how I took leave of them: I put the cage on my table, against the window, and awaited the fall of night, while I fed them both with milk. The door of the cage was set wide as soon as I was sure they had satisfied their hunger. I confess, to my shame, that I counted upon their ingratitude to cut short the cruelty of too prolonged good-byes. When the sky became the color of a crushed black grape and a ripe orange, Noctu climbed up on my Greek-French dictionary by Bailly, looked at my hand, but not in my eyes, and then took flight. The baby gave a cry which must have been one of the deepest in the scale accorded him by nature, and in turn departed far from me.

He seemed to me to be following his mother.

Thus I learned and many other observations have confirmed it later, that the bat needs no education for his sorry flight, but knows how from the first attempt and for the rest of his existence. I must add that the initial attempt must often end in a sudden skid followed by a fall and a premature end for the apprentice in the claws of a cat in the streets or some night bird in the fields.

But I saw nothing of that sort, the evening I am telling about; I saw only the stormy corner of the heavens, turning more and more the color of a crushed black grape, and less and less of orange, and I saw it all through two tears, one in each of my eyes. During the three weeks that separated still my real life, my first verses, and the first innocent smiles of girls, from my return to my college prison, it seemed to me that a little bat more persistently than any wandered about the window of my room, each evening.

To-day I am quite sure that it was not the little one that tried to tell me so many things and cuddled into the hollow of my hand. And yet I should like to think my certainty deceptive, and that it was really Noctu, remembering me, and that it was really she that was found dead in our attic next spring, where until then no bat had ever hibernated. We must put more faith in shadows and phantoms; for as reality slips through our fingers like a gliding

wave and then evaporates, so do we pass from life to dream and from dream to the beyond; and so this thing we call existence goes by, when we know how to give the word one of the rare significations that it risks possessing almost actually.

BOOK IV

SUMMER QUARTERS AND WINTER QUARTERS

I

FROM what I have already said, it seems to me I must have indicated that I was going to try to throw fuller light upon it afterwards; the bat, and especially the one that is called Noctilionid, is the creature that seems to me to approach most nearly what we are.

The natural history books employed when I was in the fourth form of the classics, and then, of philosophy—and I never went any further—classified the names of the viviparous thus: Bimanals, quadrumanous, cheiroptera, insectivora, etc. Classifications of this sort are so prodigiously void of interest that I often reached the point of regretting the time when they treated of fish, the sperm whales, the sea calves, oysters, frogs, and starfish, for the reason that these creatures live in water, a reason which may, moreover, in most cases be considered sufficiently limpid.

But then, why did the text books, by which my schoolmasters invited my youth to profit, place the Australian ornithorhyncus among the mammals? They are infinitely timid and rare creatures, of whom neither the official scientists nor I will ever see a specimen in our lives, under conditions where seeing means being able really to observe, conditions which are not even permitted to existences

like ours. Yes, why should the ornithorhyncus be raised to the dignity of a mammal, since it is provided with a duck's bill, lays eggs, and it has by no means been proven that it suckles the young that come out of the eggs, despite the fact that the legend is popular among the learned. Why? Because it is covered with hair and not with feathers and is a quadruped.

This way of assigning a place to creatures on the ladder which has neither beginning nor end is really one of the most puerile mental aberrations of our time and perhaps, after all, for that very reason, one of the most charming. If the Master of Destiny accords me leisure to show what I know on these matters, perhaps some day, weighed down by years, I shall be permitted to reread the books which are the authorities of these times, with the same surprised delight, the same thrill at naive legends, that I felt formerly in turning over the leaves of Aristotle, Pliny, Buffon, Lacépède, *History of Travels*—and even Fabre, the first tiller of this most fertile soil; but he also grasped it inadequately because he wanted to include all of that immense mysterious country, and his strength forbade him so audacious an enterprise.

If provisionally I resign myself to keeping the classification of mammals as it was taught me in my studies, it is only as a matter of convenience,

because it is one of the latest in date and because of the impossibility of building up a reasonable work, and one shift is as good as another, after all. I shall content myself for my personal satisfaction, with a slight modification of the beginning of the lesson when I say it over to myself and say: bimanals, Chiroptera, quadrumanous—etc.

The bat is, in fact, a veritable flying homuncule. In a preceding study, if I forced myself first of all to point out the abyss that separates man from the insect, here my rôle is quite different—however strong my apprehensions of falling into a facile anthropomophism, in which our old-time pride delights, and to make it a merit of animals that they should show themselves, in some fashion, closely related to us.

I am not going to spend time in anatomical descriptions that can be found anywhere. It is sufficient to me to consider the form of the skull and the thorax of the Noctilionid to start my meditation and my revery. The aspect of the skull is preeminently interesting, and on the whole much more human in conformation than that of monkeys, even the large anthropomorphical ones.

I know that this skull contained a brain, proportionately larger than theirs, richer in convolu-

tions, and, though I attach no major importance to these observations, of which a certain kind of materialism has taken too much account, it would cost me too much to pass them by in absolute silence. I note also, in certain species, and notably in the most piteous, the Noctilionid, a facial angle developed in most impressive fashion; then the teeth, whose number varies from twenty-four to thirty-two, according to varieties, are placed as ours are, and the canines have a conformation much less excessive and bestial than that of the greater number of insectivorous or meat-eating animals.

But once more, it is not looking at the minute skeleton which would teach us our troubling relations to Noctu. As I have gone along—knowing no other way of escape—it has happened that I have had to record with a certain irreverance the diverse errors of Buffon. Here I have to reproach him again with having helped as much as he could to spread the prejudice of man being the chief work of creation; again with my stubbornness, protesting that man is man, the animal the animal, and that there is no common measure between man and animals, or even between various animals, and that I shall never quite make out the difference between what we call intelligence and what we call instinct. But where I am mind and soul with Buffon is where he maintains that the outward appearance of the

animal signifies little and that the monkey, for example, is much farther from us than the elephant or the dog. As far as I am concerned, no monkey has ever appeared less like a relative to me —either inferior or privileged—than when I see it use its conformation to imitate our gestures, as in drinking from a cup, mounting a bicycle, or dancing the *shimmy*.

That is why, at this point, the habits and customs of Noctu hold my attention much more than certain physical and physiological analogies, which are troubling enough, anyhow.

I have let it be seen how difficult it is to study an animal at liberty, which nevertheless becomes indispensable here. Difficult indeed, but not impossible; patience becomes sooner than one would believe a facile and practicable virtue for an impassioned seeker or student; for that singular being whose psychology is near enough that of a monomaniac or that of an individual monopolized by a vice. It is little by little that the inevitable lacunæ are heaped up, by stubborn repetitions of experiments, by juxtapositions and precautionary developments or observations; and, finally, we can clear up the history of an animal's life honorably in some ten years, with more certitude, for example, than we can that of a great man or an epoch.

Also, according to my mind, one has to trust,

especially at the beginning of a nature study, to luck, to count upon chance, to risk mistakes, even the most fantastic and absurd, to guard against too narrow and rigorous a method. This is why I am always persuaded that there are no better or more alert observers of animals than children who love them and are interested in them. If it has happened and still happens to me to tell certain minute and unknown facts about them, strange and yet perfectly exact, I owe these documentary facts to far-away memories or to the tales of little boys who kept me informed of their researches, their inventions and their personal methods as amateur observers of animals.

The benefits of age and science are very slight; they offer us the vain satisfaction of discoursing, dreaming, trying to arrive at conclusions; but who can affirm that they do not rob us of the freshness of the eye, the art of using it ingenuously, the privilege of delving, thanks to them, straight and unencumbered, to the very heart of reality itself.

This is what I undertook myself, at about sixteen years of age, in order to observe bats, if not in complete liberty, at least in the nest and in veritable intimacy. Having blazed three nests in old trees, on the banks of the river Lot, I went out one

fine morning and fastened a curtain of wire gauze over the openings.

All that day I wandered feverishly from one nest to the other, that my prisoners might become accustomed to my face and my manners. At first, as it is easy to foresee, I was ill received. Grimaces and insults and cries of horror! Without taking too much offense, I made an ample provision of divers insects from the bushes and grasses of the neighborhood and distributed them among the improvised cages; I knew already that each one of the three contained a pair, but I did not know if the little ones were born yet, nor dared to carry fright to the climax by touching the little beasts and menacing a break-up of the conjugal shelter.

For three times twenty-four hours, in succession, I renewed my studious labor. The third evening, after having provided the nests more comfortably than usual, I undid the opening as soon as night had completely settled down.

I had my own idea; it was one of those that I spoke of farther back, which often seem rather foolish to mature men; to me, a child, it seemed at any rate, bold, and that was all. I had concluded that the work to which Noctu owed its existence was painful, and I wanted to see if, nourished without having to take any trouble, it would not prefer, at the end of a three days' experiment,

a relative captivity to the hard labors of absolute liberty and the search for a new nest where my ugly human face would not surprise it at unwonted hours.

Well, my hazardous guess was fully confirmed; the next morning the three couples occupied their respective domiciles. If they went out after that, it was only as a sort of diversion or sort of hygienic exercise or for a little amateur hunting. Experiments of the same kind, repeated many times afterward, gave the same results with very rare exceptions, when the abandonment of the nest was certainly provoked by my awkwardness or some too brusque gesture; also I must record that the abandonment of the nest never took place until after the little ones were born.

After that I could definitely take off the wire gauze which for some eighty hours had held my little beasts captive, and the progress of my familiarity with them differed hardly at all from the one I have recorded most fully when I told how I became the friend of the little winged creature captured two or three years before on the road to Jolibeau.

And what conclusion—provisory and fragmentary—shall I draw now? Here are beings who have never been, so far as I know, domesticated; nevertheless, one hundred hours at most sufficed

for them to adapt themselves to new conditions of existence. There can be no question here of atavism; nevertheless these fantastic creatures, incomplete, hampered, foolish, and wild, quickly habituated themselves to my manners, to my alarming and gigantic face, which certainly in their world must have passed for malevolent; and not only did they accept their nourishment from my hand, but they protested in their own language and demanded more when I became designedly parsimonious; they no longer feared my hands and they accepted my caresses.

Once again, what is it that is called intelligence and upon whom is inflicted the questionable word "instinct"?

The human words which are called appreciation and gratitude are as beautiful as certain dreams. I see, in what seems to me to be the reality, either above or below them, a simple reactive effect, a joyous expansion provoked by a definite or indefinite force which facilitates existence to all creation, animal or vegetable. It is thus from the top to the bottom of the supposed ladder of being. I have stated that the cricket accustoms itself very quickly to security in captivity and considers it quite useless to dig its hole; and let one only ask the florist if flowers themselves do not show grati-

tude to those who care for them in the way they best know how!

The gratitude of Noctu is almost human because Noctu is so nearly related to us. Three days and three nights were sufficient for her to consider my benefits as what was her natural deserts. Noctu who, in terror, tried to bite my finger at our first interview, now did it of her own free will and in anger if I amused myself by presenting my empty hand; or perhaps she really believed, finding nothing better there, that I was offering her the end of my finger to eat.

Yes, the gratitude of the bat is human in the sense that the little beast keeps an astonishing memory of benefits received and insists that they should be continued to the end. The three couples that I observed as I have just said, I marked, when the time came to go back to school. I had had good luck, had been slightly ill, and my departure did not take place until November. I marked them with diverse signs, with silver white, in such and such portions of their monstrous lace hands.

In the following year two of my little turtle-doves had found their usual shelter again; in another nest the male, having become a widower, without doubt on account of the terrible winter

sacrifice, had taken a new spouse, a quite young one, with very white pointed teeth and a skin touched up here and there with a shade of orange; finally, the third nest remained empty. But the survivors always knew me again.

Later, when I had the leisure, having tried out these experiments on a rather larger scale, I found again, pretty constantly, from one year to another, the same proportion of returns by couples to the spring and summer lodging, the same number of disappearances and remarriages after widowhood and divorce.

But it is a sort of joke and without any conviction that I have written that word divorce; I am going to write, farther on, how a pair of bats live together in intimacy; and I may say right here that there is nothing more touching to contemplate, and, that, in despite of insurmountable difficulties which stand in the way of experiment, I can affirm that the male and female vow a lasting fidelity to each other from the first copulation and that they feel themselves liberated only by death or by the necessity to survive and perpetuate a race which is so terribly menaced.

What I can also record is that I have never seen a male and female who were my friends in some

preceding year, and whom I had marked with the same sign and cipher to show the household, copulating otherwise than together as long as they lived; never have I found female No. 1, spouse of male No. 1, in company six months later with male No. 2. for example. I admit that that does not prove much, even if my experiments had been carried out on thousands of couples, for it might be objected that the husbands and wives of the females and males that I have found remarried had simply gone forth to search for fortune elsewhere; but such ingratitude and such vagrancy are not at all probable, for the bat is not a vagrant animal except in a very restricted space, and his winter and summer shelters remain the same throughout his life.

The proof of this is very easy to give, thanks to the system of marks, ciphers, letters, and designs of which I have told. And I am going to presume upon this question of absolute marital fidelity, of which I remain persuaded, whether I can prove it or not, with some boldness, contrary to my usual habit in a like case. The bat is an animal more human than a great many men and women, from the point of view of sentimental care and amorous obligation. There is one more detail to note: never have I seen a widower and a widow marry each other; it is rare that even when she is very

young a widow of the winter will take a new spouse at the awakening of spring. If she decides, for reasons known to herself alone, to do so, she goes to housekeeping with a young one born the year before, and this new union remains nearly always sterile—sterility which I have noted, but for which I feel myself entirely incapable of giving reasons. Perhaps because of certain physiological peculiarities which make the female bat so very like the large female monkeys and like women, there is for her, after a certain age, incapacity for reproduction. What is certain is that when a male remarries—and he never remarries except with youth—it is not thus; these, it seems to me, are the households which most often bring twins into the world.

When the fate of Philemon and Baucis is forbidden to our little creatures, they are still permitted to live and survive, imitating the example of Boaz and Ruth.

II

IN the normal life of a Noctilionid, we must not content ourselves with distinguishing, as in our own life, waking and sleeping, with or without dreams. Like us, Noctu, sleeps—sleeps after the fashion that a dog or a cat does, voluntarily during

the hours that are too bright in the day, stretched out on its belly, the muzzle hidden in the veils of the monstrous hands; it is only to rest briefly or to digest that it hangs itself free or captive from the branch of a tree or perch, the head up or down. I have noticed, let it be said in passing, that it takes up this position willingly for conversation either with a companion or with me, that it is a sort of easy chair for it, and one of the conveniences of social intercourse.

All a matter of taste! But when the head of a flying homuncule recently captured is down and it is still abusing me and telling me plain truths, I vow that I cannot help being a little bit ashamed; the vertebræ of its neck are sufficiently supple so that, hanging by the claws of its hind legs, it can look straight into my face, the nape of the neck making a right angle with the spine and the throat fairly throbbing with indignation. When I was a boy I often thought at such times, "Nevertheless, I cannot hang by my legs to the parallel bars in order to show Noctu that I know how to live, myself."

Even to-day I do not object to reflecting rather childishly on the abyss that may be made between two creatures by their different habits of talking, the one sitting down or standing up after the human fashion, and the other taking his leisure in a position which is disconcerting to our structure.

Of what grave misunderstanding this may not at times have been the cause between my recent boarders and myself. I will give them credit for this, that they accustomed themselves very quickly to my apparent inconvenience, while I do not know even now, while I am writing these lines, if the appearance of a gentleman who came to entertain me walking on his hands "faisant le poirier," as they say, would not fill me with indignation or fright.

But over and above sleep and rest in the sense in which these terms are used in the human language, the necessities of existence have forced the European bats into the supplementary necessity of hibernation. It is an atavistic custom very frequent among those species of known animals, above all in the temperate climates and among the insectivorous or so called cold-blooded ones, that the rigors of winter and the scarcity of nourishment in that season condemn them to a sort of half death which takes up almost one half of their lifetimes. It is so with a greater part of our batrachians and reptiles; and we also have mammals, other than the bats to whom the winter's hibernating sleep is known to the point of having become proverbial and legendary; the marmot, for example, or the dormouse and its near relatives, such as the muscardin and the lerot.

LOS ANGELES MUSEUM
EXPOSITION PARK

I have observed the hibernating sleep of the lerot and the dormouse, which can be done without any difficulty. But a study of this sleep appears to me no more suggestive or profitable than such study applied to the bat; a torpor, of which no word in our language can give a complete account, bearing with it sensations, or rather a total lack of sensations, that we are fatally powerless to describe, which mystery surrounds and penetrates, and it throws us suddenly very far away from the creature so near us whom we have seen and whom we will yet see better!

Here it is October.

Although the twilights are sometimes mild and long, the flying insects which have haunted them abundantly for some weeks previous have suddenly become very rare; the swallows have already taken the hint—they who nevertheless can hunt all day long and gather their prey in the rays of the sun—that it was high time to inquire about a more sunny country and a more substantial larder. A little bit like them, one sees the bats gathering themselves together; they come out of their nests much earlier than in high summer, and as they fly in the last rays of the sun it would seem that

they are calling one another and consulting with little cries.

Why do they leave their nests earlier than they do in summer? By earlier I do not mean, of course, here, by the hour of my watch, but by the position of the sun in the sky. Perhaps because the diffuse light of the star of day dazzles their eyes less so late in the season; perhaps because the last flying insects are not nocturnal or even crepuscular; perhaps because the instinct of the bats warns them that the lowering of temperature is near and there is no time to lose to get together in troops as they like generally to do for their winter quarters.

At any rate, here they are dancing almost in one place, in little ballets of eight to fifteen dances; then two, three, or four of these ballets join in a single one, and almost immediately take flight in some direction unknown to us, but assuredly well known to the minute dancers; sometimes two or three couples, or more, continue whirling in the same place, or go to take part in another ball; some undesirables or blunderers, mistaken about their set, have forgotten, in the joys of love and marriage, the precise place of meeting which their tribe has fixed upon for the approach of their evil days. But soon everything is arranged; if we do not find our own this evening it is only postponed

until to-morrow. And from that evening on, when I have seen bats organize themselves for almost a daylight ball, I know that to-morrow quantities of nests will be empty.

Not all will be so or remain so. The European bats prefer living in society in their winter palace, and sleep there with their elbows touching, but this is not a rule whose exceptions can be reasonably classified by the numbers of those who break the rules, as a pretext for confirming them. The interest of hibernation in common, for the little creatures I have tested and described, seems to me to be due to nothing else than an instinctive search for a little more heat during the glacial hours of winter.

It is also possible—though less sure—that certain aged couples, feeling death near, desire the winter community in order to remarry, in case of the decease of one of the partners, with a male or female of the preceeding year who has slept near at hand until the return of bright weather; but having given all that I have found out of the humanity of my little creature, I would prefer to make no statements as to the particular tenderness of the remarried old males for their new spouses, or the almost maternal spoiling on the part of the old females when they found a new home with a young male the following spring; I might not be

able to prevent my imagination from transposing, a thing that I greatly mistrust, thank God, or of casual jesting, and this even when a little truth would risk shining through at the end of my wanderings.

III

OUT of a hundred couples of bats (observed in Lot-et-Garonne and in Landes) one can count upon about twenty who do not join the communal winter sleep. In this case the little boy or the little girl or the exceptional twins share the great, obscure, famished repose of their immediate relatives.

These cases of hibernation by families instead of communities signify nothing in my eyes unless it be the possibility of aristocracy in the race of flying homuncule; certain ones possess a shelter whose warmth and good exposure leads them to suppose that they have no need of keeping themselves warm during the cold days by unpleasant contacts or intrusions; they are not afraid of the thought of dying while they sleep, they believe in the present and the future; they are of the same blood, three or four of them only; nevertheless they feel a reciprocal confidence in each other and suffice, more or less hazardously, to themselves.

I hasten to add that from the very first breath of warm air, the child or the children, if the father and mother are still living, are expelled from the natal cradle and energetically invited by teeth and claws to go out and take their chance elsewhere of a life of gentlemen of fortune and beautiful adventuresses.

I have not yet been and perhaps shall never be able to observe personally what happens in these fiefs, in the way of transferring ownership, when the husband or wife dies during the winter. None the less, I have reason to presume that the widow chases out her daughter and keeps her son, at least for a few days, to spoil him a little more and perfect his education in every way; and that the father makes no bones of showing his son the door, but keeps his daughter as the spouse due to him.

So here we are again very near to humanity, the pastoral lordly humanity, Biblical and primitive, but which, after all, only dates about five thousand years back in the history of civilized people and belongs also to the contemporary history of divers savage races now on the decline.

Those bats who pass the winter in society choose shady dark shelters, as subterraneous as possible; cellars and grottoes have the preference,

especially if the cellars belong to abandoned homes and if the grottoes are at a good distance from places frequented by men.

We must notice the fear that these little creatures have of our proximity when the time for the long torpor sets in; they, who pay so little attention to us, and fly so near our heads in the season of activity and hunting. This surprised me for quite a long time, for a goodly number of our rustic flesh-eaters, foxes, badgers and their kind, and others who are eternally hungry, of less importance, know very well how to get into the subterranean passages and caverns and eat up the sleeping bats; but I reflected afterward that if the presence or proximity of human beings drives away these flesh-eaters, it attracts others, notably cats, who, stuffed in town by their friends and owners, are nearly always starved devils in the fields, condemned by their rustic masters to earn their own living, that is to say, to pay for their place at the fireside and the gift of a few bones by notable massacres of rats and mice; and one can easily conceive that the pussy pays little attention to whether the mouse be a flying one or not when hunger grips her.

I knew one, the most miserable of her tribe, who, having discovered in the corner of an abandoned carriage house a company of twenty-five or thirty

sleeping bats, lived for some time in grand style and gave proof of rare foresight in going to crunch one or two each day, but never more. In fact, hibernating near us, the bat has to take not only equal risks to those that it takes in solitude, but even worse ones, since we also are there, we who kill these most innocent and least eatable of beasts, without rhyme or reason, for pleasure or by sheer stupidity.

I have noticed the preference of bats for subterranean dens; it is because the variations of temperature are less there, and on the other hand humidity seems neither to intimidate nor harm them.

Among these dens some are very ingenious or improvident, but an examination does nothing toward breaking down the theory of tastes and means that I have already stated. During the four years which preceded the war there was not a single winter in which I did not go to spend a few weeks in the forest of Landes; and during the time of these sojourns I was invited by one of my friends to air out his sylvan dwelling which he never inhabited at this season.

This last detail cannot have escaped the keenness of the bats of the neighborhood, for a shutter on the first floor, being broken in one corner, presented a good opening, and a good number of them had hastened to install themselves for the

bad weather between the windowpanes and the outside shutters; my friend never arrived until the beginning of July and regularly went back to Paris the first week in September, and the room in question had another window which permitted me to let in air and sun without discommoding the sleepers. Thus, desiring at one and the same time to keep my promise and satisfy my curiosity, I was not obliged to sacrifice one of the laudable sentiments to the other. And for four winters I found my little beasts in their happy shelter, though each time a little more numerous than the last; the place was a good one. The population of the peaceable and silent hamlet, between 1910-1911 and 1913-1914, increased from twenty-five little souls to thirty-six.

What a marvelous post of observation luck had brought me!

Since then passing from one post to another of a different kind, my friend has been shattered by a bomb, so shattered that they gathered up of him, so they told me, nothing but formless bits of bleeding flesh—but his head was intact and seemed to smile. If his eyes, opening beyond this life, still feel an interest in such poor things as the thoughts, or acts, or writings of those still remaining in this world, maybe that brave and beautiful sub-lieutenant will pardon me now the impudent little board-

ers that I tolerated in his absence in his joyous house of warm welcomes!

I have never seen these little boarders again and I shall never see them; they too have gone off to some enigmatic exile; and the little house has been sold, refurnished, enlarged, repainted, touched up, briefly ornamented with all the graces and conveniences that could be conceived by the brain of a profiteer of the Great War.

Touching and charming hours of a far-away past, which memory cannot turn back to without crossing a frightful abyss of misery, mud, and blood! It is in winter that sincere lovers of solitude chiefly appreciate its charms, particularly because they can possess it then more completely, shorn of all facile comeliness, and, so to speak, naked. When the trees of the Boulevard Pasteur had finished shedding their leaves and the odor of roast chestnuts commenced to wander the length of the pavements, I was always seized by a violent homesickness, even in Paris that I love well and to which I had only just returned. In vain I meditated upon my pleasure in seeing my friends again, reflected upon my obligations, the placing of my works, my duties, and my interest, I felt once more that my wise resolutions were not my strongest ones.

Before my eyes, closed or open, danced irresistible images. I saw the waves of a fierce sea be-

seiging the dunes, the trees of the forest twisting, groaning, supplicating. I thought of my familiar little house, well sheltered and lost on the border of twenty leagues of wooded desert; of the good fishermen on the inhabited border of the lake bringing me twice a day, whatever the weather, provisions and my letters; of the long watches beside an immense fire of pine cones, and the companionship of my wife and my sister; of the happiness of my cats and my dogs, intoxicated by their liberty and what seems to them to be an adventurous and prodigious freedom to wander; of the interminable studious saunterings among the moss and brushwood where the animals take shelter, where the lake mushrooms come up; of all my fantastic and disinterested labors. And then already I heard the clocks of Soorts and Cape Breton sound the waves of the Angelus just over my head, and the aquatic or sea birds gave out shrill cries across the savage shores, the crows cawing, the night birds howling, hissing, miauling, the confused creaking noise of the rain on the tiles of the roof and the great organ tones of the tempest; and then already I was breathing in, and this was a decisive argument, the prodigious commingling of perfumes of the autumn forest, those perfumes which make one giddy and excited, flatter and yet rend, intoxicating even one's dreams

as wines do, as soon as the sun, swimming above the fog, succeeds in caressing the drenched coppice where vegetable and animal things decay.

"After all," I said to myself, "have I not resolved to consecrate the autumn of my days to the study of certain animals? Is it not then wisdom, feeling a disgust of all work, and myself a prey to homesickness, to go down there and try to increase the little capital of observations that I intend to use later?"

Oh, little bat sheltered in the window of my friend, who could have foreseen that a time hardly longer than that of your average life could make certain men age so quickly?

BOOK V

HIBERNATION AND OTHER MISERIES

I

I MAKE no pretension to contributing to the progress of natural sciences by sensational discoveries which will upset everything that has been said or written on my subject. But I should consider myself very unconscientious if I did not declare frankly that we find ourselves here facing a limitless field of which each portion must be tilled, and that this tilling may, many times, bring forth much less good wheat than rank weeds. Observation is fatally treacherous even when the observer devoted to such studies possesses good eyes and healthy reason; all observations that date more than eighty years back may be taken, not as history, but as prehistoric and belonging to folk legend.

When it is a matter of official works, the works following one another, often renewing the errors of the preceeding ones; it is possible to find a refutation here and there, but the disposing of a hasty observation or a second-hand one is rarely replaced by precision or exactitude. If there is one science which should not found itself upon the uncertain black and white of books and reports it is the one which makes our earthly life its subject; and it seems that that is often forgotten; a copious bibliography at the beginning or the end of a work, ref-

erences, parallels, annotations, and citations, and everyone, even the author, seems content.

But the great masters themselves make the mistake of not taking into account that the field which is offered to their activity is, as I have just said, limitless. Thus even the magnificent Fabre projected, for the first time, unforgetable lights upon the shadows of the entomological world, but he none the less made the mistake of trying to cover too much ground, of proceeding from the unknown to the known by scholastic method; of occupying himself resolutely with all the insects of his hermitage instead of with a few of them; and also of forgetting that the truth in the hermitage of Sérignan might sometimes be error elsewhere.

In fact, his work, so new, so beautiful, so pure, has already become mere fable in many passages, and I know some little country children who have, even before I did, written correctly opposite certain affirmations of the master "mistake."

My profound devotion to the merits of this prodigious precurser makes me write these phrases with great regret. I am not an official scientist myself, and do not pretend to pass for an out-and-out scientist; but it is my duty to express myself thus, desiring to show how easy error is, even for one who without ambition limits himself to minute facts, experimentally confirmed for many years, and

who wishes to remain hostile to everything he has only read or heard said.

Thus I might have written without hesitation here, in place of this methodical digression, when a winter encampment of bats sheltered itself between the outer shutters of my Landais friend, "During the three months of the long torpor, the attitude of repose for bats is either stretched out or hanging." I agree that the error would not have been very important to the general order of the world, it would neither have brought Sirius nearer or pushed him farther from us, nor modified the considerable brilliancy of the star Canopus. The essential thing is here to note that in the order of study that I have undertaken, it would be easy for me to deceive myself with the best faith in the world upon some quite little matter.

It is only in a hanging position that Noctu and its like enjoy or submit to the winter torpor. The claws of the feet, thumbs or spurs, know how to profit by the slightest roughness in stone and wood for it to fix itself comfortably and maintain itself in a stable equilibrium. The membranous wings arrange themselves in such manner as almost completely to veil the muzzle; in fact, the bed has its curtains. Nevertheless, when one goes to observe the encampment, about December—that is to say about two months after occupation—one may see

on the stony ledge of the window some of the bats pushing their muzzles out from between their wings, as they do when they sleep for an hour or two in their summer nests.

The number of these irregularities increases by degrees as time passes; they were twelve out of twenty-five in the middle of April, 1911, when spring began to dart its warm arrows upon the wood of the shutters and minute shiverings already agitated those of their sisters who hung head downward; these would be entirely awake in less than twenty-four hours; a drawing in of wings, stretching out of muscles and bones, recognitions, pipings, chattering; if the weather remains warm and pleasant, as it did in April, 1911, the bats who were still asleep hanging on the evening of the 13th, had all departed by twilight of the 15th to the hazardous conquest of love and subsistence. But those who slept stretched out continued not to move.

I was doubtful; I opened the windows and perceived that they were all dead.

Dead. Dead and slightly mummified. The appearance was intact and no odor of putrefaction exhaled from them; but touch the little thing, and it dropped to bits pulverized between the fingers; the tissue of the membranous wings was no more than a powder of impalpable grains and it is hard

to understand the miracle of how they remained coherent. It left on my epidermis some little gray tracks shining and frosty, like those left by the wings of the great night-peacock or the Death's-head moth, when two awkwardly or too brutally seized; skin, fibers, and muscles are nothing more than dust and the numerous bones of this minute organism are curiously friable; the sternutation or beating of the wings of the survivors before their final departure often suffices to disperse these remains and erase them completely from the visible world.

As a lamp goes out when the oil is lacking, so it is by inanition, because of an insufficient reserve of fat, that these bats die, often certainly prematurely. Old and less agile after their fourth year, less apt at acrobatics in the twilight chase, it is evident that the aged of the race are the marked victims of the winter sacrifice; but among the young there are a good number of unlucky ones, male and female, who share their fate. I look upon this decease with a kind of envy. Yesterday the beasts slept profoundly, hanging to a bit of wood or stone like a fruit upon its branch, like one of those dusky figs which they resemble in this attitude; and death came so softly that the little soul never heard its step; the bat falls from its stem as a fruit when it is mature falls from its branch, but for other reasons; and

it is as if nature, who gave it so difficult a life reserves a compensation for it—a death entirely free of black thoughts and suffering.

II

WE have seen some twenty or thirty minute subjects of the airy ballet fly at the approach of cold weather toward the traditional dwelling of their torpid season; it is possible, moreover, that other flights of friendly refugees and allies come to join them here if it is sufficiently large and commodious.

Nor must we believe that the transaction takes place without grabbing and tumult; in this phalanstery the couples and their child wish to lodge side by side, and dispute the best places with acrimony; a human being observing such a transaction with all necessary discretion and self-effacement, finds himself in a well-known country and needs very little imagination to realize that in the same case it would go exactly the same way if it was a matter of individual or family groups of his own species.

The males exchange blows and bites after numerous pushings; the females are somewhat calmer, but they affect that aggrieved air that one notices in certain ladies traveling in a train opposite other persons of the same sex; the young ones, tired and

already sleepy, or who are still hungry, become turbulent and have to be caught by their parents. It takes two or three days and two or three nights before the installation is stabilized and the final outcasts go to hang themselves, in despair of anything better, to the paw or the wing of some comrade already profoundly and comfortably asleep.

There is a great deal to tell about a sleep that commences this way. It does not seem to me essentially different from that already mentioned of the dormouse, the loir, the lerot, the muscardin, and the main thing here is to guard oneself against inexactitude and errors that have developed in sufficient number since Buffon, by the observers of these animals. Buffon and his respectful disciples have at various times appeared to admit that hibernating mammals were transformed during hibernation into cold-blooded animals, having no other temperature than that of the element around them and relegated for the time being to the rung in the ladder of the batrachians, fish, and reptiles.

This in an error as much for the European bat as for the loir.

Let us listen to the "man-with-the-cuffs"* discoursing of the bat and the lerot:

These animals have so little interior heat that it never exceeds that of the temperature of the air outside. When

*Nickname for Buffon. TRANSLATOR'S NOTE.

the heat of the air is, by the thermometer, ten degrees above freezing point, that of these animals is also ten degrees above. We have plunged the ball of our little thermometer into the body of several living lerots; the heat of the inside of their bodies was just about equal to the temperature of the air; sometimes the thermometer thus plunged, and so to speak applied to the heart, fell a half degree or one degree, the temperature of the air being at 11°.

Here is a typical example of an absurd experiment, ill conceived, and deplorably executed. I am not denouncing it malignly, but because, in face of the persistent chaos of the studies to which they lend themselves, many remarkable specialists continue to experiment with just as much negligence, or cling blindly to the word of an illustrious precurser, as if they themselves were infirm, ignorant, or, worse still; or hope that their public or their hearers will not examine too closely. Of course Buffon quite simply neglected the fact that his loir or his lerot was dead when he pushed the ball of his little thermometer, destined to measure the internal heat, into the body and against the heart of the little beast.

For if the beast had not been dead how would it be possible that I, measuring internal heat in as inoffensive a manner, as I do on myself when I question my health, should note that the cipher respectively with the lerot and noctilionid in a state of

winter torpor registers twenty-nine and thirty-three degrees Centigrade, a temperature hardly less by one degree to that which is normal for these animals when awake?

Let us continue. Having accepted a false observation, Buffon draws deductions with rigorous logic, truly worthy of a better fate;

> It is not astonishing, then, that these animals, that have so little heat in comparison with the others (mammals), fall into a torpor as soon as this little quantity of interior heat ceases to be aided by the exterior heat of the air; and this happens when the thermo meter is no more than ten or eleven degrees above freezing point. This is the real cause of the torpor of these animals, a cause which has been ignored, and which nevertheless extends generally over all the animals that hibernate in winter, we have recognized it in the loir, hedgehogs, and bats; and although we have never had occasion to prove it on the marmot, I am persuaded that it has blood as cold as the others.

Neither have I myself seriously observed the marmot, but I am willing to proclaim, none the less, that the blood of this creature is as warm as that of the loir or the bat, with a difference of about one degree in winter and summer.

A little farther on Buffon explains that the torpor of hibernating animals lasts as long as the cause producing it and that this cause is unique—cold. Let us recall that he fixes ten or eleven de-

grees above freezing point as the point where the rigor of the weather condemns these beasts to sleep and that he is not counting in Réaumur degrees; let us be generous and count in Centigrade degrees, as is the usual custom of our kind, and note that a temperature of four or five degrees above zero, which is fairly rigorous, does not in the least prevent the loir from gamboling or the bat from flying. From its début in April to its end in October, this amount of cold, above all at twilight, is not excessively rare even in the south. I noted it the 20th of September, 1912, at the top of a small mountain, which automobilists still have to open up between Orio and Zarauz, in the Spanish Basque country; but it was not cold enough to prevent my seeing quantities of bats chasing about in the limpid and darkened sky, among the branches of the forest which crowned the little mountain.

It is not cold, but hunger, which constrains the European bat to hibernate. As soon as the evening air is deserted by the only prey that is permitted it, it can count upon subsisting only upon its reserves of fat and it is to spare this that its race is instructed to immobilize itself during the months when the life of flying insects is also suspended; for every movement is the cause of a depredation of calories, of combustibles; and under pain of premature death, it is necessary that the bat con-

serve its temperature fixed as that of an animal of warm blood. We have seen numerous cases where it did not succeed and succumbed.

It may be objected that the loir, whose food is almost the same as that of the field rat and the squirrel, cannot invoke famine as its pretext for hibernation. But it is a matter here for the bat and not of the loir; this last is a great lover of sleep in all seasons, and, on the other hand, quite different from our animal; if the winter is clement, it awakens often enough and does not fail to go out and gather up, in the surroundings of its earthy, stony, or woody den, a substantial collation. Moreover, it is never fatter than in the days of the maturity and fall of fruits, grain, beechnuts, pinecones, hazelnuts, chestnuts, and everything happens as if it were only trying to acquire that fat which is necessary before it can give itself up without fear and without remorse to its favorite distraction, which is to sleep as much and as often as possible. It is a hibernating amateur, an epicurean that knows how to organize its life according to its taste; whereas the bat submits to a rude and strict necessity. The former is lazy; the latter is infirm and indigent.

How many times I have tried to imagine the sensations and sentiments which would correspond in us to those which precede, dominate, and follow

the absolute torpor in which a bat is plunged for half of his existence! Only a man suffering from chronic catalepsy would probably have an exact idea of the state which is neither life nor death and which certainly is traversed by no dream images.

If I speak here of dream images, it is because it is incontestable that during the short summer naps the little creatures dream just like a dog or a man, you can then see their wings shivver voluptuously or angrily, and hear them pronounce words in their embryonic language; but during the long torpor nothing like that happens.

Their insensibility is then almost absolute; pricking them produces no movement; the beating of the heart is just as frequent as in the state of waking, but its intensity is infinitely less, as if here, too, an economy of carbonization must be realized. Death alone, at its approach, seems to reanimate them for a few seconds when the muscles of their feet no longer have strength to hold in the desired position the minute claws by which they hang; I have been present at three such agonies; each time the little creature spread out its membranous wings, moved them feebly as if to fall more softly or wrapped by them in a natural shroud.

I prefer not to try certain cruel experiments, of

doubtful interest, and write in place of the observations they would have facilitated here, "I do not know and do not want to know." But let us finish with the observations of Buffon on the little hibernating creatures and admit for once he was rightly informed,—which I believe is so in this instance:

> When the loirs feel cold, they hug themselves and wrap themselves up in a ball in order to offer less surface to the air and thus *keep a little of their heat* (!)—One may pick them up, hold them, turn them over, and they will not move, will not stretch themselves out; nothing will bring them out of their torpor except a gentle and gradual heat; they die if they are put too near the fire; to awaken them one must bring them to by degrees.

We must not forget that in the same chapter Buffon assimilates the loirs, lerots, and muscardins to bats and hedgehogs which he knows very slightly, and to the marmot that he frankly confesses not to know. I once took up a hibernating bat in the palm of my hand and it awakened drowsily and died. The test of fire seems to me superfluous; Buffon must be quite right here.

It is only necessary to listen to the vital organs of the winter sleepers or to dissect those that winter has put to sleep forever to understand that their hearts, lungs, fibres, muscles, and their bones are reduced to the most precarious condition, desperate and almost dead. Among those that survive it is

clear that there remains just enough fat and calories to permit them, at the first spring hunt, to make up for the initial effort by immediate prey; indeed, the first effort is almost as dangerous as the hibernating torpor, and between the fifth and thirtieth day of a normal April you can find on the soil, quite inert, Noctilionids that have not had the strength or the luck to stand their resurrection victoriously.

I do not think I was too radical in declaring at the beginning of this study that the European bat is condemned to death, and will disappear with brief delay in about twenty thousand years—unless they cross the seas and establish themselves in the neighborhood of the equator and there become partially fruiteaters, like some of their more favored sisters.

Let us consider a winter encampment of about thirty individuals, for example: of this number one will be able to count not less than nine to seven old couples and more than thirteen to eleven young ones, male or female, born that year, for, as I shall bring to light a little farther on, twins and triplets among bats are cases as exceptional as in the human race. Two thirds of the old couples pass from life to death during the torpor or during the first few minutes of their resurrection; among them maybe six individuals out of eighteen will survive; add to this thirteen young ones—and this is a gen-

erous count—to whom they have given birth during the fine season of the preceding year, and here as a total count we have a winter clan of thirty souls reduced in one year to twenty (a maximum), if it is not reinforced, because of its convenience and charm, by colonies or refugees or aliens from equally disseminated neighboring clans.

Now I think I may suggest that not more than twenty thousand years will have passed before the divers races of little European bats which have not emigrated will go to join the chickens who had teeth.

III

THE defective constitution of the bat is not the only cause that brings about its extermination or its approaching exile. Another cause exists: the diminution of the summer winged insects in countries of an old civilization, and their almost total incapacity to accommodate themselves to a city such as Paris, for example.

A very curious study could be made of the entomological fauna of Paris—one of those studies, "thorough and complete," which are so easy to perpetrate without much trouble. How many indeed of these insects should we find in this city which are offered at every step, by a suburb as soon as it

becomes somewhat rustic? Infinitely few. I do not deny the existence here of lice, fleas, bugs; but these are, so to speak, domestic animals. Personally I have felt the existence of mites in the divers Parisian apartments to which life has brought me. A friend showed me, a little while ago, under the stone of his kitchen sink, a flourishing nest of cockroaches. Another, in an old familiar restaurant in Montmartre to which he had brought me one evening, asked me:

"Do you hear your friend?"

And I heard indeed in the kitchen, if not the cricket my special friend, at least his fireside cousin, who seemed to be doing his very best to make me welcome.

Also I remember, during the summer that preceeded the one when war commenced, some trees called Japanese junipers newly transplanted into the nursery garden of the Luxembourg, served as a pretext for the Parisian naturalization of certain beautiful nocturnal moths that flew in agony against the arc-lamps of the Boulevard Saint-Michel. The Japanese junipers were populating the gardens of the Luxembourg; certain young Japanese assiduously frequented the inns near at hand and recognized their compatriots in these gray-and-gold, adorably marked night moths, deliberately

martyrized by the people drinking on the Latin terraces.

A few Japanese moths for two or three summers, a few native moths astray in the gardens of the Tuileries and the Luxembourg, some cochenilles, and some particularly dazed June bugs, these are, together with the domestic animals that I have named above, the only insects whose presence I have recorded in Paris during the whole time I have lived there or frequented the place, a time that I do not wish to specify any more exactly.

Dear old Parisians who have such a silly fear of insects, which quite little girls in the country do not feel, how I understand now your love for birds, those winged creatures in ambush in your suburban woods, your gardens, and your city squares. These guard you from those. The doves or pigeons, thrushes, finches, sparrows, and even minute climbers who have elected to live near you, suppressed regularly each year the worms on your lawns and in your thickets, pecked the flies against your windows, and ate their larvæ in the smoke of the streets and the stables and imposed in more than one way upon the alien Lepidoptera the desire, however agreeable and sympathetic they might be, to go back to their own country, where life must have had decidedly more charm for them.

No; it is not carelessly that I spoke a little far-

ther back of the Parisian birds as "in ambush." A single thing astonishes me, and that is that the winged race should be so slow to understand and that all birds do not inhabit large cities or their suburbs. How can we deny that a little of that which we call intelligence is joined sometimes, in certain animals of a same species, to instinct, when we see the migratory birds, even those of a timid character—here I am thinking of doves and pigeons—settling themselves in front of the palace of the Senate, taking root there, and giving up forever their traveling and adventures? They have understood as well as a man could understand, and this in less than two generations, that a livelihood awaits them there; they do not have to hunt, except for pleasure; they keep the certitude of abundant nourishment, thanks to the proximity of numerous bipeds and quadrupeds below; they quickly learn not to feel fear, comfortable and fat as they are, at either guns or traps of greedy individuals or epicures.

I love these fine guarded birds, civilized and become a sort of functionary. Men perhaps have not altogether understood yet; but the flying creatures of the Luxembourg and the Tuileries know very well that they are protecting gladly their intelligent neighbors from divers vermin; moreover, that they are pleasant to look at, that they are writ-

ten of in their romances, that they are of the same blood as the midinettes, and that they are guaranteed security and subsistence as a reward of merit.

Exclusively insectivorous, Noctu can not rival these parvenus, hunters by daylight and lovers of the rarest living prey, provided with skillful beaks, convenient wings, and a power of vision that it is hard for us men to understand. That is why the bats desert the heart of Paris, where the air is empty of that which is the motive of their daily promenade. Once only at setting sun, I saw a couple flying along the facade of the Louvre seeming to make an uncertain inscription on those illustrious walls of a warm and golden color like that of antique parchments; once only I say, and I regretted it then, for the little creatures get on better in the country. How did they get lost there? I risk recording that this happened in May of 1910, that during that winter the Seine had overflowed in a terrible way and that these unchained waters might perfectly have transported from the more central of the broken down banks divers germs of flying insects from the country and spring brought the aerial accession to the place where they would find them.

The presence of water, above all stagnant and

impure water causing or at least making possible numerous little winged lives, there is in any case nothing astonishing in the fact that the bats showed themselves in the center of the great capitol flying along certain corners of the fortifications and divers parts of the Wood. But there was a time not so long ago when they showed themselves quite Parisian, nesting there in winter and in summer, in attics and cellars even of the central portions.

Among other witnesses, let me site the story of the deplorable *Restif de la Bretonne*, where he records with real admiration for his own cleverness at joking, how he found bats in his roof and hastened to go and hide them in the bed of a young lady of the neighborhood of "*la Nouvelle Halle*," or "*Halle-aux-Blés*," if not in a place even more justly decried. At that time the little shanty where Restif lived was situated in a part of the street of La Harpe which has long since been demolished. He tells us that he had just left the street of Rats, for this new domicile. I don't know where that street was; it is, however, probable that it had representatives of the genus and that it owed its charming name to them; but what is more certain is that for a long time now the street of La Harpe no longer provides winter shelter or nests for bats.

The neighborhood of water is not the only thing to produce an abundant flourishing of insects; the

presence of dirt, ordure, and putrefaction, all things that water is supposed to be an enemy to, are indispensable to the existence of a quantity of insects who are in their turn, indispensable to the subsistence of Noctu.

I do not want to throw a new discredit upon insects by these details, which inspire such unjustified sentiments of repulsion and terror in so many people; the greater number of dung-eating insects are only so when in the state of larvæ; and as far as the other insects go, the most numerous ones, I wish that a great many of my own kind were as clean as ants, as sober as grasshoppers, or as dainty as crickets.

As to Noctu—it has been too much cried down on too many divers pretexts for me not to prefer to make out a veritable plea for its rehabilitation, brief, precise, and reliable. It is incontestable that its rustic exile is now almost absolute, due to the progress of hygiene and cleanliness in large cities; one can even be sure that the presence of a crowd of bats, at evening, in important streets, indicates houses deprived of modern comforts, a defective drainage system, and a negligent or incapable municipality. Moreòver, the absence of Noctu in Paris no more proves the taste of the animal for dirty places than it proves the perfect cleanliness of the city. We know, alas! that there is much to

do still before all the decay and ruin of the kind that Restif knew shall be demolished, even in the more central quarters. And shall we treat as a repugnant person the brave fisherman who regales himself upon the fried fish he has caught in the places where the fish bites best, notably in sordid drains and sewers?

Noctu hunts, also, where it has the best chance of succeeding. Let the cities become less congested, let human lives stretch out instead of piling on top of one another in proportion as the facility and rapidity of the means of transportation grow, and let the countries of old civilizations, such as ours, tend to become immense sparsely populated cities and the winged nourishment will become more and more rare for bats under our European skies. As if to give a striking denial to everything that I have written, a living jewel, about the size of a grain of rice, but the color of emerald, a minute Coleoptera whose name I am absolutely ignorant of, has just settled down upon the page over which my pen runs. The twilight falls over the calm Parisian street. The little insect hesitates a moment, then lifts its elytrons a little methodically and takes flight from the open window by the light that remains. Sparrows are pecking on the pavement.

That is one more that will not go to fattening up

the bats and yet risks, none the less, perishing without leaving any descendents!

(This is a paragraph added afterward to the present chapter):

I had just finished, or rather thought I had just finished, when one fine day I met Jean Giraudoux; and we began to talk of my friend.

"They are very nice, bats," said this charming comrade to me. "Do you know that I hear them every evening giving their little cries in the garden which is under my windows?"

"In Bellac?" I asked him.

"No. In Paris."

I thought for an instant that the poet had mistaken the pipings of a finch or a dreaming sparrow for the cries of the bat. Then, much troubled, as is easy to understand—for he persisted in his affirmation—I did not hide from him that I should write a note in my book giving the information that he had just given me and that I should use his name.

"And you can take the responsibility of it upon yourself," I added, not without ferocity.

I resolved, none the less, to have a clear conscience; and this is what I confirmed the very next day: flights of bats, rather unimportant ones, pass

over Paris in July, August, and September, but never in the twilight hours. It must be after the time that the alarming meeting with birds is not to be feared, and that the electric globes create in the dark of night a sort of factitious twilight in which the night flies, gnats, and other tiny creatures famished for light, swarm; here the intense light plays the rôle of a trap which man—evidently without wishing to—might have set up in favor of bats. We may believe that the rumor of this happy state of affairs, this unforeseen windfall, had been spread abroad, above all this year, among the citizens of the little winged and hairy people of the suburbs, and that the most resolute and miserable among them did not hesitate to come at the cost of much pain and probably by stages to search for their nightly fortune in the better lighted parts of the capital. I say; above all this year, because we must admit that it was peculiarly hot and dry, as the year 1910 was noticed for its abundance of water. Apollo unchained took striking revenge upon the aged naiads, and in the one victory as in the other the customary equilibrium and evolution of animal and vegetable births had surely been somewhat upset; while I am actually adding these lines to my chapter the chestnut trees along the boulevards, whose leaves fell during the summer, have risked putting out unforeseen blossoms and new leaves in

September; here it is October, and the papers announce that in certain French regions the race of June bugs has been deceived and that they can be heard murmuring at evening among the unseasonable foliage; hence, what is there astonishing in the fact that the banks of the Seine and the ponds in the Parisian squares should have brought forth, out of season, a supplementary generation of winged lives, unhoped-for pasture for Noctu and very welcome?

I ought to say here that up to now I have never been in Paris in August, or at least only to cross the city at such a time. This admission may show the difficulties for observation in natural studies and how presumptuous anyone who gives himself to them would be if he believed that he had said everything and that he was exempt from error. Truth is an unbroken fragment of the infinite, and each scrap of it remains strangely obscure, however scrupulous the analyst may be in his work.

To be precise then, I cannot affirm that in August of last year there were, or that in August of next year there will be, nocturnal expeditions of bats, of the kind that I have recorded this August in various part of the capital; but I think that I may affirm that everything that I have said heretofore remains exact and that bats no longer nest or hibernate in Paris, and that the twilight chase

had remained forbidden to them here this year, both in summer and in spring.

But let us understand the situation well. In August the little ones are grown up, capable of flying with their own wings and earning a living; the family life in the hollow of the old wall or the old tree is no longer obligatory or at least all the time, even for the husbands. It is then quite natural, it is even logical that these should renounce the sweetness of home, since life is so hard, and try to make their way elsewhere.

Let us note or recall, moreover, that even in the fields it is the widowers and the widows who, during the hot season, live like perfect vagabonds, taking shelter where they find it on the first chance branch in the open air; those bats that I saw in Paris were doubtless of this caste, or they represented fragments of broken-up clans that could not find work in their own country—a country at least ten kilometers away, therefore far enough away for fatigue to counsel them not to return daily, but to stay at the hotel while they awaited the hour of the electric lights; and the hotel is in the bell tower of a church or among the branches of the garden which are under the windows of my friend Jean.

Friend Jean, far from dedicating a threatening note to you here, you see that I am making you honorable amends. You were not dreaming, nor

did you hear a finch dreaming, and without knowing it you have rendered me great service—that of furnishing me with a happier transition than I could ever have dreamed of to what is to follow here.

What I have learned here shows indeed that Noctu, vagrant and laborious, in the hour "between the dog and wolf," in the fields, in the village, in the little towns, and even in the greater part of the large ones, knows even in Paris how to adapt himself to noctambulism, to repose in haphazard fortuitous shelters, to profit by artificial lights which do not interest domestic animals at all, terrorize the big and little wild animals, and which only the most voracious of diurnal or nocturnal birds do not disdain. To change one's customs according to condition or rank, one's kind of work and modes of getting a living, according to latitudes, hours, and days, that, it seems to me, rather than artificial organs, intelligence, or reason, charterizes and distinguishes the most encumbering guest on the planet Earth—man. Then, as it has been my plan, from the very beginning to emphasize the relation between the flying homuncule and man—

BOOK VI

NOCTU DEFAMED AND REHABILITATED

I

IF the fancy seizes me here to reread divers ancient authors, and notably Pliny the naturalist, I might probably report that the liver of the bat, dried and powdered, is a certain remedy for a cough and toothache—or something like that. But take care not to believe that I am making fun of old Pliny when I say this. His books, two thousand years old, make us smile now, but what will the scientists say of ours in two hundred years from now?—in two hundred years or less, for what certain idiots currently call progress goes so quickly in our time, that its advance is sometimes too swift, risking thus the loss of its logical outlook. And I may add the remedies of Pliny had at least the virtue of being harmless, disgusting as they appear to us at times. Nor would anyone be able to swear that the innocuousness of chemical preparations which universal sufferage tolerates having extolled in the daily papers is equal to theirs.

If I wanted to show my erudition, I would now pass in review all the authors who have written of my flying homuncule, since ever humanity has thought it necessary to invent writing. But I will content myself with quoting two, not in the least that I find anything interesting in what they say upon the subject; but since I have taken sides

against the methods employed too often by specialists in the natural sciences, and above all against the excess of second-hand or bookish information, I should be vexed to neglect a detail that proves that the evil is excusable, at least in the sense that it does not date from yesterday.

Aristotle of Stagira, who cannot be considered a jester, asserts in substance, in his *History of Animals*, that turtle-doves (trugones) do not like to frequent, in daytime, the places that my friends have haunted at night. In consequence of which about five hundred years later Oppien of Anazarbe (or Apamée) in the first canto of his *Cynégétiques*, counsels the hunters who are fond of turtle-doves never to waste time in the little woods where bats are frequent at the fall of night, "because the bird dear to Aphrodite shuns the haunts of this mortuary and sinister *bird*."

There are better things for a dainty game hunter than the flesh of doves; still, I do not disdain it and above all I like the science or art, which Oppien celebrates in verses, at once solid and airy, deliciously pure and archaic for his day. But I am forced to confess, during four successive years of hunting doves near Hossegor, I have always rented the same place for hunting from the municipality, according to the local custom, and that this place was on the borders of a low swamp where clouds

of mosquitoes and other insects swarmed—which was the reason that from the hour of twilight the place was a regular rendezvous for all the bats of the canton. And nevertheless, it was the hour when we came home, my friends and I, with game bags usually very honorably filled.

But, after all, I am perhaps wrong in accusing Aristotle of having repeated what he heard from the good people of his day, and Oppien of having drawn his unscientific and cynegetical authority from his reading. It is possible that in the last twenty centuries a new agreement may have been established between the bats and the doves, who may have had reasons for detesting each other in the days of which my ancient authors speak, as I have just explained.

Or it may be, conforming to a principle mentioned a little further back in speaking of Fabre of Sérignan, that the truth at Stagira, at Apamée or at Anazarbe, are errors in Gascony.

Until now, we have nevertheless, never heard Noctu seriously accused of being a mortuary and sinister "bird," worthy of the execration of men who hunt the birds dear to Venus, (and very boring birds they are when you possess a quantity of them

on your roofs and in the pigeon houses), who only know how to express themselves by cooing.

Mortuary and sinister! This is the beginning of a debate that I propose to clear up and I hope that I may give my opinion with brevity and modesty. The unjust and injurious epithets that a defaulting antiquity inflicted upon Noctu have not been in any way lessened or submerged by the surge of invasions or the tides of the centuries; they seem to me like boats—in the familiar sense of the word —which have held up against all the waves and the currents.

Since the Middle Ages this mortuary and sinister "bird" has been the obligatory mount of witches. But rather than undertake here a development of such historic puerilities, empty of all interest for the friends of bats, as well as for the people who are afraid of them, I prefer to record examples of what has been told me about them since the time when I was able to listen and understand. I shall say nothing of my interlocutors, male or female, who were sincere and sure of being able to swear before God that they were inventing nothing.

And yet we live in the nineteenth century.

Old Gibracque lived on the road by the cemetery five hundred meters north of the garden of Old Pile. All the neighbors pretended that she was descended from a family of witches, and I would

have taken great care not to contradict this because I was only fifteen years old and she was hardly ninety, and had begun to believe in her own stories from the very moment when, without laughing at them or denying them, I amused myself by discussing them critically with her. Thus I came to know that the sky in full daylight was full of enormous bats, invisible because they were the color of the sky and the sun, and it was they who employed witches to go at night and join their kind in such and such sinister and infamous places. As for the bats that the eyes of ordinary men saw at twilight, they were nothing but the diminished shadows of the real bats used by witches, which were the color of the sun and sky.

The ideas of Gibracque had at least the merit of being fantastic and somewhat poetic. I know a great many others as little justifiable and infinitely more prosaic. Also in Mayenne, the bat is said to like to fly near our heads with a well-laid design of giving us lice; the worst of it is that it sometimes happens to the wretched little creature, as a result of an awkward aërial glide that he catches on to a feminine headdress, and this signifies not only an intention of inflicting sordid parasites on human skulls, but, according to the villagers, amorous disasters for the victim of the aggression, or death in one year.

Death in one year does not necessarily take place for the victim of the aggression, but it happens generally in a minute to the bat.

A little farther west in the Brittany which is not yet Britainized, in the Brittany of the Gauls, I heard, at Dol, a marine engineer on leave who told me that vampires of the equatorial countries were nothing from the point of view of danger to the bats in our own country, "to whom we attribute so little importance because they are so small, but who attack men, nevertheless, when they are imprudent enough to sleep with open windows." He added that they undoubtedly didn't suck a great deal of our blood and we could not perceive it, just because it was of so little importance, but the nocturnal visits of these creatures, being venomous, caused pimples, boils, and other ills. This good man was attacked by boils and tumors, and above all with a leaning to *bistouille*, which brought about his death soon afterward—another crime that he attributed to the activity of bats.

In Landes I learned from an innkeeper, whose establishment was situated on the border of a pond (rather muddy and scummy) of fresh water, that it was from the wings of bats that microbes fell—and this man was not entirely devoid of culture and read the papers—and that these microbes gave bad fevers to all his little family and himself. Here,

then, is Noctu, anxious to destroy all the causes of malaria and yet made responsible for this curse.

Obligatory primary instruction, or instruction so considered, has nevertheless revealed to the urban and rural masses that the bat is insectivorous and that it is not justifiable to crucify this animal on the doors of barns or other such places since it is not only inoffensive, but is useful. The same teaching revealed to the masses at the same time, the existence of microbes, but just look where the crowd places them and how it considers that it must put itself upon its guard! This is not the place to criticize the method of education which appeals almost entirely to memory and neglects reason, for which its very incoherence renders it inapt; and moreover obligatory primary instruction, if it had done no more than help to destroy the fashion for crucifying bats, that in itself would have been a result before which I would willingly bow my head.

I do bow my head, then, for the fashion has almost disappeared. About twenty years ago, when the chances of vacation time or the wanderings to which I was passionately devoted took me to Gascony, to Brittany or to any of the Basque countries, I saw my little beasts often enough more or less cleverly executed in rustic places, nailed, living or

dead, against wood, slightly mummified and already friable since it is only by inanition that they trespass upon winter dwellings. But even then when I questioned the people of the country upon the reasons for so barbarous a custom they showed themselves very slightly catagorical.

Far from your spirit, Paul Irubure of Ustarritz, were the traditions which cost a certain Lady Jacaume to be burned publicly at Bayonne in 1332. This lady lived at Urt, and the trial which was communicated to me by a friend who knows a great many even more curious ones, shows that she defended herself like a beautiful devil and that she owed her death in the flames only to the evidence of the neighbors, who affirmed that there were exaggerated crowds of bats around her house and her walled-in garden. Paul Irebure, when I asked you once, smiling with the air of an accomplice, why you never failed, each year, to nail a bat against your front door above the metal plate where the name of an insurance company was inscribed, you replied with that air of authority, somber and placid at once, which is the perquisite of pure-blooded Basques:

"Because that keeps away misfortune."

In other countries and for other people it keeps away thunder, preserves millstones from thunder and vineyards from hail; it prevents the premature

birth of children, safeguards animals from illness, and Christians from the evil eye. But let us stick only to the reasons of Paul Irubere, for example. Usterritz is not far from Urt; and if just south of Adour a quantity of bats around the house sufficed formerly to convict a man or woman of witch-craft and have them perish in flames, it was well worth while to show oneself inimicable to these satanic beasts. Paul Irubere, like the Cevennes shepherd of José Maria de Heredia before the vase of libation and the communion cup of whose meaning he was ignorant, made "despite himself the hereditary gesture." There were doubtless many affairs like that which brought the Lady Jacaume to a premature death, at the bottom of the century long habit among our rustic populations of martyrizing bats.

More reasonable was the last executioner of Noctu that I knew, the hotel-keeper along the borders of the Marne, who a little before the war, when I set him the same question that I did to Paul Irubere, replied in a jovial tone:

"Because the creatures are truly too pitiful and have such ugly faces."

He did not really say "pitiful" or "face," as a matter of fact. I am not of his opinion; I think Noctu is a marvelous little jewel of silk and velvet and that its flight will be greatly missed in our

earthly twilights when it has been forever effaced. But taste is a personal matter and what I should like to make out here is the origin, in the mind of my kind, of this sentiment of horror and repulsion and fright, caused by an innocent beast.

Physically the face of a bat is a minature of those of dogs and monkeys; one variety of bat, called the horseshoe bat, shows around the nose a leaflike extension of skin, an æsthetic effect which I agree is not altogether happy; but is it not just such facial deformities which make certain dogs or bulldogs so sought after?

Moreover, it is not a matter here, I repeat, of praising the physical equipment of my little friend. Not everybody likes the type of beauty of dogs and bulldogs, and for this reason it is that my hotelkeeper on the borders of the Marne seemed to me more reasonable than the other torturers of Noctu. On the other hand, what is there in the origin of those legends which made Oppien treat it as a mortuary and sinister bird and was worth a funeral pyre for a lady suspected of having an attraction for the race.

I might wander a long time here in the ill-enclosed domain of human psychology juggling gravely or capriciously with more or less brilliant hypotheses. But I would rather mention only one: Noctu is an anomoly; it is unhappy; its race is con-

demned to death; hence it is that we instinctively raise a hue and cry at this failure of our common mother, Nature; and all this, perhaps by a perverse, perhaps by a frightfully lucid, autosuggestion makes us remember more or less clearly, when we look at the flying homuncule, that we ourselves are not such a very successful effort, that we were forced to invent fire and a great many other things, and that we have not such great cause for pride; but a failure will always find somebody a little more unfortunate than himself whom he can torture and speak ill of.

I have expressed for different reasons, in the preceding book, sentiments and ideas which seemed to me to be in place there. I depicted my country of Landes in the time when the pines had not yet brought it salubrity and wealth. Then from Gironde and Adour in the surroundings of the string of swamps that the ocean, drawing back to the west, left behind like the prints of its footsteps, the plains stretched off to the infinite, dotted here and there with bogs. In their sombre blue waters —dead rains that minute beds of clay, stretching along the sand, tarnished over the surface of the soil—leeches swarmed, a natural wealth almost unique in the country at this time, enormous black and gold adders, and the noxious exhalations of malignant fevers. A sickly race sparsely decemin-

ated over the immense territory herded cattle and ate boiled maize and drank unhealthy water.

"Humanity," I added, "is not precisely charitable, and it is a natural tendency on its part to consider the unhappy as the guilty, struck down by a divine justice."

Others have said this before me, but we would have to have as little good sense as that child, Jean de la Fontaine, to insist that misfortune is synonymous with innocence. In the eyes of their luckier neighbors of the rich valleys of the Garonne, of the Gers, of the fertile Chalosse and the Basque country, the real *Lanusquets,* the Landes people of old Landes were considered for a long time an impure and accursed people, rarely baptized and who doubtless had the cloven foot. As to Landes itself, it was a frightful country, haunted by evil, and there was no diabolical marvel that might not be met by the people bold enough to venture there.

In any case, an old peasant of Mugron-en-Chalosse, with whom I used to talk a great deal, seems to me to-day a proof that one can keep such a state of mind even to our time. God keep the soul of Peire Balsamet, who sleeps now on a hill on the borders of the Adour in a pretty, sunny little cemetery, where, when autumn comes, each blue juniper tree has its own blackbird, as each transparent fruit has its kernel. Peire Balsamet was a veritable reli-

quary of old stories. Having traveled by a railroad and seen Bordeaux, he considered these stories, of course, mere nonsense. He would have been much astonished if it had been explained to him that in a certain sense they were as true as possible.

One of their principal heroes, called Jean Tranquille, had arrived after divers extraordinary adventures, in a country whose entrance was guarded by a dragon with pestilent breath. Passing beyond, he had seen the most frightful marvels—giants fifteen feet high, and a city built in the sky; he had met frightful beings, with a language hardly human, dressed not in Christian coats, but in skins of beasts. Such in former times was the country of Lande and the inhabitants in the naive imagination of the people who saw them from a distance; for you will have understood that it was to Landes that Jean Tranquille had been led by his love of adventure, and those who heard the story he told, among many others, never questioned his adventures. The dragon with the pestilent breath? That was fever. The city built in the skies? That was a mirage, such as is often produced by the play of light over immense flat lands. The giants? These were the shepherds on their stilts. The hairy men? Poor devils ridiculously wrapped up in animals' skins.

As to the language, which Jean Tranquille thought hardly human, it sufficed that it was not in the least like the dialect of his own hamlet.

II

LET us return to the axiom, apparently so simple that in order to love animals one must really know them. Between men and animals, as between men and men, evil speaking grows out of uncertainty, chiefly, and it is in ignorance that hatred and terror plunge their roots most energetically.

But to know animals, it is not sufficient to have observed them with kindly eyes; and to show that one knows them, it is not sufficient to tell one's experiences keeping a little of the emotion and admiration in one's style that one has felt in observing them; and to love animals is a quite different thing from taking an interest in what is told about them in books, even including my own. I agree that observation only can stimulate interest or love, but for the student, as for the readers, it is powerless to produce real knowledge.

Once again, I have no intention of writing a discourse on method in the natural sciences; I will content myself with saying that a knowledge of such or such among the innumerable lives of this world is only valuable in so far as, while we study that

life, we never lose sight of the fact that all knowledge is really a knowledge of ourselves; and that, *vice versa*, one who does not know his own nature knows nothing.

It is essential, then, from the very first glance turned toward the soil or toward the depths of the aërial ocean, that we make perpetual return to our human condition and put ourselves constantly in our place in the earthly universe, always taking care that this place is neither absolute nor eternal, but varies with time and also according to the animal we are considering.

In brief, in this kind of study more than in any other, a certain relativity is necessary, a relativity unconditional and prudent—a provisory doubt which it is our duty to prolong, on every side and into infinity.

Thus when it is a matter of a life considerably older and more evolved than our own—the life of a cricket, for example, or any other insect—it is by scrutinizing constantly the abyss which separates the mode of living of the insect from that of man that one has the best chance, not of bridging the abyss, but of throwing a little light across. Quite the contrary, to understand the flying homuncule, whose actual life is about contemporaneous with our own, one cannot too much insist upon the likenesses.

I have already pointed out some of the resemblances, but the most precious ones I have held back for the moment when I should undertake a rehabilitation of Noctu. Various times I have made allusion to its language. Now I no longer hesitate to write: Noctu talks, Noctu has a language, embryonic, doubtless, but which merits, none the less, to be taken as such. People may jeer at me, or object that my friendship for the little personage makes me forget the difference between words and cries. I persist in my affirmation.

Has there not often been question of the language of monkeys? There have been recorded among them, if I do not mistake, about fifty syllables which, sometimes repeated, sometimes differently joined together and pronounced in different tones, really express in a stable manner such sentiments as these animals can feel. Personally I have never, alas! observed monkeys except in the monkey houses of our zoölogical gardens, upon the misery of which it would not be generous to expatiate, and I feel no false shame in confessing my incompetence.

Nevertheless, I feel constrained to avow that in front of these piteously caged monkeys I have never gotten a clear impression of uttered words or continuous conversation. It always seemed to me, moreover, that their discourse was addressed to

their visitors, either abusing them or demanding food. I have noticed, moreover, that these discourses consisted solely of strident guttural sounds, impossible to transcribe in syllables, which varied in intensity or insistence, according to the degree of fury or greed and also according to individuals, even of the same race. Now it is impossible to talk of a language where there is no fixed rule. Also, amongst themselves, their oratorical relations are limited to noises of defiance or joy and invitations to battle or games. Is this different from dogs or a quantity of mammalian quadrupeds whose respected idioms are reduced to two single words of one or two syllables, so that their respective dictionaries would be complete when one had transcribed, for example, *miaou* or *ouah, pfutt* or *rrrou?*

Once only, about four years ago, in the botanical gardens, I was curiously troubled,—do you remember it, Franz Toussaint?—before the cage where without looking at anyone, even his spouse, who was nursing the saddest of babies, a chimpansee suddenly intoned a sort of lugubrious musical declamation, of which certain syllables, distinct because so slowly uttered, came back like a refrain at regular intervals. This unhappy father, as I have said, did not look at us; he looked at the grayish palms of his hands, scratching first this and

then that finger of his other hand, as if he were marking the time and the rhythm to which he was trying to set his words; quite differently from what usually happens with monkeys, even the anthropomorphic ones, it lasted a relatively long time—from three to five minutes. And I could not help thinking of the mourning chant of certain savage peoples, or of what must have been the first elegy of the first poet, for it was impossible not to feel, in listening to this lamentation, a sensation of something in it reflective, composed, and deliberately willed.

Now primitive as a poem may be, one cannot conceive the possibility of one absolutely lacking in words.

Perhaps, even with humanity itself, the monologue, lyric, disinterested expression, modulated or chanted, preceded the current dialogue and utilitarian conversation. So I have known a chimpanzee who was probably, among his kind, a great elegiac poet, but I have never seen or heard monkeys talk to one another, in the sense we give that word among ourselves.

It may be that is not the case when they live at liberty, in couples or even in tribes, in the virgin forests of Gabon, of Guinea, or Malay, and I envy explorers or scientists who can go to the spot and make up their minds for or against the truth of

simian idioms. But for those who wish to convince themselves that men are not the only earthly beings capable of speech, or rather of conversing among themselves, it is not necessary to make distant and perilous voyages. Let them bend over a nest of little bats, having proceeded as I have indicated, and be patient enough to accustom the owners of the nest to their faces.

I swear they will never regret their patience.

For it is undoubtedly a matter of conversation here, or rather frequent and interminable conversations; these poor creatures at leisure, despite themselves, for a greater part of the day, do what they can to keep quiet, to sleep and conserve their reserves of internal heat; but, especially when the child is about to be born or is just born, too many hopes, too many cares, gather round their tiny hearths; and from three to four o'clock in the afternoon they can no longer restrain their speech.

It is to be noted that as soon as an intruder of my kind has managed to become familiar to them, they show him an insolent indifference, discuss their little affairs right under his nose as if he were not there, and pay no attention to him, if he knows how to keep quiet and not to move, except to remind him of his duty, which is to bring to them,

toward the decline of day, or even a little earlier, a sufficient installment of suitable insects.

Less clever and subtle than the scientists who go so far as to distinguish some fifty syllables among the simian idioms, I have been able only to catalogue in my auditive memory about a dozen different sounds, and this after having taken part for hours and years in the conjugal and household discourses of bats. But these sounds are very markedly different and there are two or three which are repeated in definite and precise circumstances, so that a rough draft of the translation here becomes possible.

Thus the sounds which signify hunger and anger are definite; I am less sure about the one which signifies fear, for it is also the one which signifies tenderness; but is it really so extraordinary to men who really know how to love that fear and tenderness become confused in the souls of the flying homuncule?

What is perfectly natural is that with this creature, atavistically famished, the sound by which it expresses hunger remains to the observer the most indisputable, the most distinct. The bat who was used to me and called me to order when I neglected to furnish its pittance, and the unknown bat who starts on its daily hunt, through the air, held forth in exactly the same manner, the one addressing an

often barren heaven, and the other a horrible giant who by a rare and marvelous chance, attended to its needs from unknown motives, perhaps because he is subtle enough to see how much the little creature prefers a certain laziness to vain and impoverished labor. But whether the word for hunger is pronounced to the heavens or to the giant, it is exactly the same among all the Noctilionids that I have observed—free, semicaptive, or captives, and hardly more prolonged among the vampire bats—and not much shortened and more gravely emitted amongst the red bats.

When Noctu and his cousins repeat it as they fly through the sky, they accompany it sometimes with another word, a very different modulation which seems to be a sort of call or warning—an invitation not to turn aside or to turn back to the nest, a signal that a prey has been missed by husband or wife or friend and that it would be well not to let it escape finally. At any rate, this word will never be heard on the lips of the bats that you feed in their nests. We must admit here, up to a certain point that fixity and stability which permits us to give the name of language to a series of vocal sounds, rudimentary as they are, in the throat of an animal.

A rudimentary series, twelve sounds in all of about one or two syllables! But reread that touch-

ing *History of Travels,* dear to M. Bergeret and celebrated thanks to him, where they relate all the maritime expeditions, from the commencement of the sixteenth century through half of the eighteenth, which contributed to erasing the mystery of our narrow planet and to diminishing the extent of the domain which man considers as his own fief. Sixteen thick volumes, at Didot's bookstore, Quai des Augustins, at the sign of the Golden Bible, Paris—sixteen thick volumes, the edition of which after the death or expiration of copyright of the widow Didot, was laboriously continued up to the twentieth century by Arkstée and Merkus, of Amsterdam, then by Rozet and Maradan, Parisians, then by a certain Panckoucke who was perhaps of British origin—for this was the epoch when France lost with so much nonchalant good grace her title of queen of the seas and her colonial empire.

Twenty thick volumes, which seemed to me shorter than many novels and that I shall probably never get tired of reading! We find there such naked and gripping descriptions as can only be conceived by eyes marvelously fresh; countries spoiled or lost live again with their virgin fauna and flora, their resources and their still unnamed inhabitants, or else named according to color, whatever their habits, Indians. But animals to-day are no less

mysterious for scientists than were the "Indians" for the first great adventurers of the world.

Now in each recital of journeys to Oceania or Patagonia and many other places we come back to such pitiful refrains, hardly contemptuous or ironic, phrases such as these:

"It does not appear that the speech of the people of this country consists of more than a hundred words, and the sense of these words can be entirely changed by the emphasis they put on them or the greater or less rapidity with which they pronounce them. We will try, however, to give an example of their language: thus *turo* signifies food, but also signifies good weather, as if it were the good weather that brought the food."

This is noted in the account of the voyage of Kolben to the country of the Hottentots in 1713. This Dutch explorer made quite a long stay in their country, and remarked at the end of the time that "the pronunciation of the Hottentots is accompanied by so many vibrations, turns and inflections of language, that it sounds like stuttering in the ears of a stranger. It is very difficult and probably impossible for a stranger ever to learn their language."

In comparison with most people of my generation, I am proud of having been formerly very strong on grammar and even composition; this rare

virtue prepares many tranquil and inviolable joys, of which one can be assured for a whole lifetime, and which offers many pleasant satisfactions to the secret places of the mature heart. This said, there is nothing astonishing in the fact that ever since I have known Noctu well I have hoped some day in the future to write a dictionary and perhaps even a syntax of its language. But to risk that to-day would be mere puerility on my part.

And this for the very reasons that left Kolben discouraged, facing the difficulty, not so much of interpreting as of transcribing Hottentot sounds. There is no doubt that since Kolben, the Hottentots, who are themselves of a pure race if there remain any at all, have profited by the benefits of civilization and have learned a language which is easier to transcribe. But to put upon paper an exact auditive sensation of the some twelve words of the European bat—truncated vowels and modified consonants would not suffice because they are nonexistent in the greater part of human symbols we would have to have a whole system of notation taking into account the quantity, keenness, and weight of the sound, and I believe I have already said I knew nothing of musical writing; we would have to have pages of explanations, precisions and commentaries for each word. I do not say that the study would be without interest, but I do not think

it is indispensable to this book, and I prefer to point it out to the curiosity of other scientists rather than to undertake it myself.

Nevertheless, since Kolben had the courage to write the word *turo* in speaking of the language of the Hottentot in the course of his story of the voyage, there would be a certain pusillanimity in not trying to note here a word which approaches it very nearly in sentiments and needs in the language of Noctu.

As a sample I will give a word, or a phrase, which may be unhesitatingly translated into French by *J' ai faim.* This would be printed approximately with us, *M'vrou-ou-ik;* note that *M'vrou* is a long syllable, *ou* is a very short syllable, and *ik* is a half-long syllable delivered an octave higher than the other two. *I am very hungry* is said by repeating the phrase twice very rapidly. *I am literally dying of hunger* is expressed by adding *M'vrou-ou-ik* to *M'vrou-ou-ik,* with such volubility that they are produced by a single emission of voice, the three syllables being bound and melted into an audacious contraction of syllables.

I think this example is sufficient. Although I have admitted above all that is necessarily puerile and imperfect in such notations, whether it is a matter of bats or monkeys—I do not regret having let myself go in this little game, casually. For from

this emerges an infinitely troubling reality, namely, an incontestable, constructive, and syntactical analogy between the language of Noctu and the most primitive human languages. In both it is by the doubling or repetition of a word that enormity or considerable quantity of an object is expressed, as well as intensity of sentiment; doublings and repetitions constitute the superlative and doubtless the comparative degree in these defaced grammars.

The soldiers of our black army imposed their linguistic habits even upon our own speech.

Writing this, I cannot help thinking of my friend Moussi-Bebeker, a Senegalese gunner, *bambara,* for whom "It's good" was a simple form of politeness, but who, when it was a matter of rare satisfaction, and notably of the offer of a bottle from the neighborhood of our common hospital, multiplied the good-good-good indefinitely, with a volubility which grew according to the pleasure of the wine or the intensity of his thirst.

I was so little able to teach him the use of the adverb *very* that he took it for a synonym for *good.* At the end of our relations all that I had been able to do for him was that he expressed his pleasure by saying, "It is very very very"—a pure courtesy on his part and a desire to express himself in a dialect which was peculiarly my own and which I seemed to prefer. But from the moment when he

used the adverb very, the word good, following it, seemed to him a ridiculous superfluity.

III

FINALLY, in order that no doubt remains, let us lean again over Noctu in its nest.

When we speak of a veritable conversation between human beings, a continuous flow of conversation, we cannot conceive the idea of this without the accompaniment of some gestures and without the looks of the speakers meeting.

I have said that this was not the case with monkeys, at least among those I have been privileged to see. Nor can one write the word conversation, except as a sort of joke, among dogs and cats fighting over a bone or a sweetheart; nor among Parisian cab drivers such as existed twenty years ago, who, without ever turning their heads toward one another addressed jovial or abusive insults to one another in passing; here there is neither conversation nor language (even among cab drivers), but simply a sonorous expansion of heart, rightly or wrongly too full or too heavy.

Now let us lean over Noctu in its nest and such comments become perfectly useless; conviction is born. These people are telling one another things, communicating their impressions, exchanging ten-

der words or invectives. The facial expression is even more comprehensible and translatable than the syllables and words; the teeth are more or less uncovered, the nose grimaces, the eyes blink, the forehead is puckered or smoothed out, according to the case; gestures also are there; the wing takes up that aspect of a cape which I have already described apropos of Noctu nursing her child; the membranous hand gives the perfect illusion of an arm without a hand waving with more or less vehemence under a covering of drapery, with a precision and appositeness by which we are touched, and which the author of the *Institution of Oratory* would probably admire and praise, perhaps even cite as an example, if only he had known the habits and customs of bats. And then they look at one another, or lean up against one another, or turn toward the object of which they are speaking, nearly always their child, or the insects which my munificence has added to their household, or the color of the daylight which is hidden by my disquieting face. Nearly always the child! These poor devils, when they live in a family, are the most conscientious of educators and often incoherent meddlers; they adore their offspring, caress it, dispute violently about its caresses and about holding it; then without any apparent reason the one of the pair which has been too severe or too tender has

silly things said to it by the other one, and a real family row follows.

It is not necessary to have much imagination to have oneself transported into the midst of a poor French bourgeoise family. The mother, who is more impulsive, boxes the little one's ears more frequently than the male; I regret that the phrase "boxes its ears" is inexact, since the structure of the bat permits it to give a good blow of the wings right in the face of its daughter or son, but I owe it to truth to avow that punishment consists usually of minute bites, which make the little one yell quite after the fashion of Totor or Nénnette corrected for like small naughtinesses. After which, if it is madam who has given the correction, monsieur corrects madam and they continue it reciprocally. It happens sometimes that both of them agree to spank it at once, and then the baby, according to its character, manifests more or less shrilly its fury and vexation.

Truly do we not seem to be at home with them, we men?

The motives for the corrections given by the mother, the father, or both together, I do not think are very difficult to elucidate.

I only remember one which occurs to me, and it belongs in the hygienic class. Hardly is the child capable of dragging itself up on its little feet when

it wishes, like any grown person, to take part in the festivities provided by the ridiculous giant; if mother or father feel that the right moment has not yet come, it is very bad for its health—I have shown sufficiently, I think, the care that my animals have when their race is menaced,—there are corrections and resounding scoldings, followed by disputes which are not less noisy. Nor are there more or less disputes, scoldings, and corrections when the mother feels that the moment has come to wean her infant and the little one is still obstinate in desiring to suckle.

The Noctu household incontestably brings a rather noisy, sufficiently human activity to the education of its offspring. Perhaps also it is teaching the little one the art of expressing itself properly in the language of its race; when new-born, Noctu's child cries like an ordinary baby; it does not leave the nest or take flight until it knows how to talk like its father and mother, which is about the end of July, or oftener the end of August—for in the race of Noctilionids periods for copulation and birth are much less fatal than among most animals, another thing which shows them nearer to us. What is quite sure is that the child of Noctu's household is instructed, educated, spoiled (even very awkwardly at times!) as long as possible.

After the first flights it finds its place again in

the nest daily; and almost without fail, if the parents are not of those aristocrats who remain in their private home during the winter, it follows them and sleeps near them in the hibernating habitation common to many families.

The child, boy or girl, never considers itself marriageable before it has hibernated. I do not know if others have expressed contrary opinions; I intend to keep to the very end my horror of transmitted observations, written or oral; but twenty-five years of experience allows me to believe that I have good grounds for affirming this.

I add, contrary to what has been told by a scientist otherwise worthy of all admiration and respect, that Noctu does not teach its child the art of flying by carrying it through the air hanging to its shoulders. The art of flight is innate in the baby, and the adolescent, as I noticed at the rather ungrateful departure of my first boarder and her son, takes from the very first the risk of death or of life.

Whence comes this legend of a bat traveling hanging to the shoulders of another? As far as I am concerned, I have never seen such a thing. There would be neither right nor reason for saying here, in regard to this flight by couples, that it may signify, if not the flying apprenticeship, at least the wedding journey. From the fact that

most winged insects celebrate their nuptial hours above the soil let us not childishly infer that this monstrous exception, the flying mammal, does the same.

As a matter of fact, the conditions under which copulation takes place remain entirely hidden from me. We know the conjugal fidelity of Noctu, its love of a truly family life, and I think I have already alluded to its modesty, or something which irresistably invokes this word in my mind brings it to my lips and lets it fall from my pen. Here, in trying to show the relation of the flying-homuncule to man, I shall not insist upon this point, for modesty in humanity is a sentiment very recently invented and shares in the uncertainty as to methods in matters of love that I have pointed out in *The Life of the Cricket.*

"Modesty," writes M. Anatole France, I do not know where, "is a form or a derivative of the sentiment of property."

Maybe so. But it does not appear to me that the native women of Tahiti, receiving Cook, Bougainville, their officers, and the rest of the expedition, had ever suspected that modesty existed, although, despite a civilization which confined them to a state of nature, they possessed the sense of property to the point of practicing theft only under cover.

The humanity of Noctu I would try to prove

from other factors, if I believed I ought to expend myself further upon this subject.

I would show him ill—quite after our manner—of consumption sometimes, sharing with us divers physiological miseries such as the goitre. A report of the Academy of Medicine has even, so they tell me, made my little friend responsible for this illness among my kind. I have not been able to get hold of this report, and am ignorant of its tenor; on the other hand, I can personally state that a large number of bats have goitres; but because Noctu is subject to ills like our own is there any reason for concluding that we owe our illnesses to its influence when these illnesses attack us in turn? And was it not considered a few years ago perfectly honorable to inoculate certain anthropomorphic apes successfully with the germs of that disease which is most rigorously human?

Farewell, unhappy little winged sister!

BOOK VII
FAREWELL TO NOCTU

I

FAREWELL, Noctu!

O frail, long-veiled, silken creature, seeming to wear in advance the mourning for your race as well as your own private mourning, now I have to say farewell for this season. Here, I am still in my country of Landes, and in the beautiful rustic parsonage, where a great but too modest poet, a friend among friends, welcomed me a few days ago. Where could I better throw aside the thoughts and feelings, too heavy at times, to which the consciousness of your fate has subjected me, while I tried to tell the circumstances of your life as seen by my childish or mature eyes?

It is more than a year since I began to write your history! What will become of it? What will it point out to men in the matter of knowledge of themselves—and above all to those men who, richer both in leisure and in science than I am, will point out my omissions and perhaps my errors? I do not believe that I have made many mistakes about you, but I am sure that I have forgotten a great deal and that I have deliberately rejected much about which I was ill informed myself, or which ran the risk of seeming to be imagination, poetry, legend, or romance, in the world of the professors of wisdom.

Yet nevertheless— — —

But this farewell is not forever, for if a longer life is lent me I am sincerely persuaded that you and the other animals have precious teachings to give me—to give me and others.

Here is an evening so beautiful that I feel my pen unequal to its task. Noctu is attempting its first aërial ballets, precursors of the hibernating retreat. And a special case that I do not know how to elucidate at present presents itself. Another omission! So much the worse, and let my sincerity spring forth from what I have just written!

The year 1921 was exceptional in heat and dryness. October was more stormy and burning than August usually is. And here are my winged friends without any desire to hibernate, because of this fact, or any means of livelihood. For, at least in this country, the insects upon which they nourish themselves, older or more happily evolved than they, are already quietly dead or dying. Evening spreads a blue haze over the field before which I am finishing this book, opposite a clock tower and the sky. The birds have hardly become silent, and Noctu, the flying rat, and the red bat swarm feverishly, hunting the rare prey whose conquest is a real

merit. What a sacrifice of the generation to come, of those who will be able to awake next spring, to be born or to produce! How many, male and female, will fail at call, when the season comes back in which Aphrodite awakens Adonis, among those who this evening are taking refuge in the fissures of old walls, or the holes of the neighboring old trees, their stomachs nearly empty, asking, perhaps, for what crime they are thus tortured?

For why should memory be denied, embryonic though it may be, to these creatures which have a language and so many other human traits? Imagine them counting their dead next spring, and remember how we ourselves felt when we looked back upon years of so-called progress which we thought exceptional.

Do we not also count our dead and the dead of the entire world, a bankrupt world? Bankrupt, why? Because progress is too rapid, this progress dear to some imbeciles. Noctu thought it ought to take flight, or was forced to take it; it will die and its whole race die, too. We, we believed that we ought to take flight, too, —in short, to take artificial flight! And the results? Here they are: wars, inevitable monstrosities among animals and even vegetables, and in place of suppressing, as formerly, some thousands of individuals, we have suppressed some millions. Progress?—it is Hom-

ais,* representing human reason, such as the imbeciles of whom I have spoken elsewhere, understand it.

The bats, counting their dead next spring, will pronounce in their own language perhaps the words, earthly cataclysm. My readers and my friends, do you understand? I believe, I am even sure, that we men also are decidedly ill equipped for a long journey in time, on the infinite space of the planet Earth. A peasant—not of Landes, but of Brittany—told me a few years ago, with that primitive placid conviction which distinguishes those of his race:

"It seems that every time one finds means of curing an illness, God invents another, for men live no better and no longer in our day than formerly."

Beneath the brutality of this formula what truth fell from the lips of this humble man! Not that I wish to deny the immense dignity of those who consecrate their lives, and sometimes even risk their lives, to finding remedies for our physical ills and to putting off the perils of death. But who can certify that it was not precisely what imbeciles called progress that constrained and bound them to their studies?

The planet Earth, unless subjected to non-earth-

*Homais is the chemist in "Madame Bovary." TRANSLATOR'S NOTE.

ly but celestial cataclysm, will have millions of years during which man may live upon her. But false progress offers many chances to suppress man, the "proud parvenu," in times relatively near that which I foresee for the bat, if the nefarious effects of wars such as we have just been subjected to continue. Having verged here upon questions for which I feel a perfect horror, namely politics, I will take care in such a book as this, not to let my lamp burn too brightly. Counseled to a saddened humility, right or wrong, by the color of the hour, I might answer perhaps servilely, perhaps insolently. But I cannot nevertheless, let these lines that I have just written go without a brief conclusion, for false friends might misinterpret their significance; the study of the heavens below has made me also a patriot, a militarist, an individualist, in order to live—and I am speaking of humanity here. War is necessary, but we must not have it such as we just have been subjected to and as we shall practice it even more atrociously perhaps, to-morrow; the lowest of the insects and the plants pass their lives in internecine war. I am not absolutely certain that this is a war which obtains in all the worlds of space, but the fashion in which life is organized on our planet forces us, us kings of the Earth, to subject ourselves to this law in the same

way that plants and animals do. I hardly think, after this confession, that I will be taken for a partisan of disarmament in despite of the terror that seizes me at the mere idea of future wars.

It will not be a question then of the annihilation of a nation, but of all humanity. Four years of carnage have sufficed for the material bankruptcy of the world, the unbalancing of feeling and thought in the noblest of souls, a return toward barbarism and absolute misery of a people which was, whatever one may say at present, a great part of Europe. We talk of the Slav fatalism and resignation; but to how many moral and physical defeats have not the victor people themselves been abandoned?

We have no right to despair of the future of humanity. But the proud parvenu ought to employ all his strength in lowering his estimate of his true value and his real significance. If among the gifts accorded us by Him whom I have called elsewhere the indulgent Usurer, we do not cultivate humanity, kindliness, the love of beauty—vague enough terms—with the same eagerness, the same heartiness, as we do intelligence and reason—words that it is known that I appreciate, we also are not here for a long time. The greater part

of our inventions are only lamentable shifts, like the wings of my friend. If man does not ally himself with the progress of the soul, with intellectual and moral ascendency, progress is not and will not be other than an instigator of discord, a source of unreasonable activity, a speculator in false coins, a fomenter of wars—wars which will become more and more cruel and ruinous, a direct cause of retrogression, the march to death.

Now, since humanity has concerned itself with its own history, there have been heights and depths, but it would be puerile to affirm that it has shown any real eagerness for that moral and intellectual ascension which is indispensable to its life. Taking into account various actions and considering on one side the savage king who ate his prisoner of war, and on the other hand William II and a few financiers who ruined the whole world by a mere play of will, I cannot, whatever it may cost me, fail to cry out upon our decadence. A few more catastrophes of this kind and these pages will show their real value if there still remain anyone who knows how to read.

My incorrigible optimism inclines me to believe sometimes that the history of humanity represents only the ungrateful age of which prehistoric times were the infancy. But I cannot away from the

thought of the millions of years during which the earth will still permit life such as we imagine it to its creatures. Shall we be capable of holding our own and not letting the scepter fall?

Once again optimism overcomes me; I let myself glide gently down the slope; but despite the temptation, despite the play of imagination which nudges me, it is not in this book that I shall try to prophesy and describe THE BEING WHO WILL COME, or rather who would come—like us, believing in God; like us, or in his own fashion, intelligent and reasonable—if ever and by our own fault the scepter should happen to fall from our hands.

II

FAREWELL Noctu!

This time night has fallen completely, like a recompense for the day, and it is the hour that I prefer above all others. I watch the stars come out; I follow, with my eyes already tired by too much sun, too many lamps and lights, the capricious wandering of my little unhappy winged friend whom I have tried to make beloved here.

Always the same setting; always the same catalpas, plane trees, and the clock tower opposite me. In this autumn of abnormal mildness the catalpas show, against transparent skies, emerald leaves

hardly reddened; the trunks of the plane trees are a violent violet. Hour that I prefer above all others, hour that I always recognize and love with the same intensity, in despite of the sly advance of age! Since it is, moreover, so mild and beautiful an autumn, how can I resist so much harmony and charm, how shall I not yield to my dream of becoming, with its counsel, more master of myself and of events, stronger, wiser, better?

Hour that I prefer above all others! A storm is menacing; the wind blowing up from the neighboring sea rolls up the clouds on the horizon of the sky, darkening it prematurely, frightening the flying insects and restricting even more the nourishment of Noctu for the next twenty-four hours; sinister foreboding, the leaves of the plane trees, whose forms imitate the cut of his wings and whose color under this sky is not very different from its own fly before the wind. The ancient words, tragic and sublime, come back to my memory; I understand better than ever the fate of the generations of men and leaves, and of all the animal and vegetable races to whom our world has consented to lend a fragment of life—to all the races and all the individuals of these races. Hour preferred above all others, hour of the stars and of old Pile, hour of labors ceased and grave games—games which prepare in childlike souls the soaring

of human and divine love! The loves that were to come were passing through the ineffable landscape of dreams, and the stars were in the heavens and Noctu was flying so close to my hair—

Beloveds, or, to speak more precisely, was it love itself that was desired? white, feminine forms passing into the shadow with as much grace and holiness as in the most pagan and Christian of unforgetable poems! Everything was there. Everything—the delightful present, the future which seemed so immense, and the little past! Those of whom one dreamed walked in their white garments and were yet little girls. From these visions of tenderness, so vaguely perceived at times, all aspirations are born which grant man the right to live on this planet Earth and mark his passage there with some light and some dignity; the love of the beautiful and the love of the divine! The first cheek offered to my lips, about my sixteenth year, was the same admirable thing as a verse of Theocritus or of Chénier thrown like a ray of light into my eyes and then singing wildly in my heart.

Farewell Noctu!

It was not only the hour preferred above all others, but the hour blessed above all others since the Angelus added to it its charming and grave

voice. Then the impulse toward the future carried away the dreams of the present, sweeping them aside, so to speak, and making room for the higher aspirations; for above the pleasure offered by the cheek of a young girl there is the love of human love, such as it should be conceived, immutable, complete, trustful, pure, creating from two beings, leaning upon each other, new strength and new sweetness; and beyond the pleasure of seeing the stars come out, and above the involuntary caress of my little winged friend flying so close to my hair, there was a famished desire to know and to understand; there were all the voices of the animals in the lower sky, familiar to this season, repeating untiringly the counsel of which I am not yet tired —listen and look. Above all there was the divinity of the hour, its noises, its perfumes, its colors.

By these things one approaches the divine by an easy, to speak truly, irresistible slope—irresistible to such a point that no merit attaches to me for following it. No uncertain aspirations, no romantic effusions, no vague Lamartinian reveries about the certitude of a beyond, which I have always taken rather gayly, toward which I walk, with a difficulty diminished each year, by the light of which I am so sure. Peace of the nights and the days; no fever on my brow. Insomnia itself is and re-

mains pleasant. There is a light which cannot be questioned, which is precisely the one that I have always sought, when the hour of Noctu, which is the hour between the "dog and the wolf," beckons me toward the infinite and guides me on the certain path. I have done all that I could not to lose the way. The faults that I regret are those that one cannot truly deplore because, after all, one was walking in the night and by hazardous paths. The paths have now joined the great highroad and I am sure that the only true star is about to rise on my horizon.

Farewell Noctu!

The night is completely black now and you have gone to your precarious nest, famished doubtless. The night is completely black and thoughts succeed to aspirations! The clouds have only covered the heavens as if to permit me to see my own darkness a little more clearly. And what do I see there, unhappy creature? A little stretch of the human destiny, and much of your destiny; your sleep will come prematurely. How I pity you, I, whose sleep by and bye will be a friendly respite between life and dreams!

The wind which comes from the sea—*que bouhe de le ma,* or *que bufa de la mar,* as they say in the

divers dialects of my true language—has awakened suddenly, like a child knocked against its gorgeous cradle by an awkward or too devoted servant. It rises, heavy with sylvan or swampy treasures; all the odor of autumn, of burnt leaves of the plane trees, of the slender pines, and the taste of fog which floats about us at the fall of night, are joined to it. It is left to us to choose among the impressions that it brings.

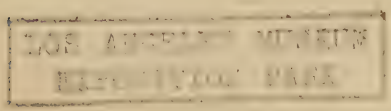
I think that I have chosen, once for all.

The close, dark night brightens suddenly, because the wind blows stronger; it knows how to set the clouds flying so well that it has no trouble in waking up, lighting and brightening the stars. At the same moment the great veils around my thoughts are torn. What could I hope for by way of greater serenity in this world? The friendly moon herself has yielded to the spirit of the wind. And the sorcerer wind is resigned to this brightness which it has brought to the birth.

Above the catalpas and the plane trees, epitomizing and giving the whole significance of the severe landscape, the clock tower stands out, rigid, strict, lordly.

And behind the clock tower there is the moon.

THE END



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